

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Susy Tseng-Fark Examiner #: 76063 Date: 10/23/02
 Art Unit: 1745 Phone Number 301-50588 Serial Number 091689817
 Mail Box and Bldg/Room Location: CP38A09 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc., if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Molded Electrode, method for production thereof and secondary battery
 Inventors (please provide full names): Please see attached list thereof

Earliest Priority Filing Date: 10/14/1999

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Please search for an electrode comprising:
 (a) an electrode material comprising a polymer active material, a conductivity-enhancing agent and a plasticizer and
 (b) a plurality of current collector sheets; the electrode material and the current collector sheets are formed into one piece, and the current collector sheets are spaced from each other in the thickness direction of the electrode.

See attached claim 2. The Examiner is not giving weight to the term ~~was~~ molded in the preamble.

STAFF USE ONLY

	Type of Search	Vendors and cost where applicable
Searcher: <u>Civil Army</u>	NA Sequence (P) _____	SEN <u>1</u> <u>67.20</u>
Searcher Phone #: <u>301-50588</u>	AA Sequence (P) _____	Dialing <u>1</u>
Searcher Location: <u>CP38A09</u>	Structure (P) _____	Questal/Orbit _____
Date Searcher Picked Up: <u>10-30</u>	Bibliographic <u>1</u>	Dr Link _____
Date Completed: <u>10-30-02</u>	Language _____	Lexis/Nexis _____
Searcher Prep & Review Time: <u>155</u>	Followup _____	Sequence Systems _____
Clerical Prep Time: <u>1</u>	Parent Family _____	WWW/Internet _____
Online Time: <u>710</u>	Other _____	Other (specify): _____

Application case serial number 09/ 689817

Attached are the search results (from commercial databases) for your case.

Color tags mark patents/articles which appear to be most relevant to the case.

~~Color tags mark patents/articles which appear to be most relevant to the case.~~
~~Patents are marked with a color tag if they are relevant to the case.~~

Pls call if you have any ?s or suggestions for additional terminology,
or a different approach to searching the case.

Prepared for: Examiner *Sury Tsang Farter*
By : Carol Wong, EIC2100, 305-9729
Date : 10-30-02

CP3
8 A09

File 344:Chinese Patents Abs Aug 1985-2002/Oct
 (c) 2002 European Patent Office
 File 347:JAPIO Oct 1976-2002/Jun(Updated 021004)
 (c) 2002 JPO & JAPIO
 File 350:Derwent WPIX 1963-2002/UD,UM &UP=200268
 (c) 2002 Thomson Derwent
 File 371:French Patents 1961-2002/BOPI 200209
 (c) 2002 INPI. All rts. reserv.

Set	Items	Description
S1	226876	ELECTRODE# OR MICROELECTRODE# OR ELECTROLYTE# OR ANOD?? ? OR CATHOD?? ? OR KATHOD?? ? OR POSODE?? ? OR KATOD?? ? OR NEG- OD?? ?
S2	20284	CURRENT(2N)COLLECT???? ?
S3	369	(PLURALITY OR MANY OR MULTI OR SEVERAL OR TWO OR NUMBER OR NUMEROUS OR MULTIPLE OR MULTITUD? OR FLURIF? OR SECOND OR MOR- E) (1W)S2
S4	1	MULTILAYER?(1W)S2
S5	540	S2(3N) (SPACE? ? OR SPACING? OR INTERSPAC???? ? OR INTERSTI- C? OR SEPARAT???? ? OR SEP? ? OR CLEARANCE? OR INTERVAL? ?)
S6	637	S2(3N) (LAYER? ? OR STRATA? ? OR STRATUM? ? OR INTERLAY? OR INTERLAID?)
S7	1330	S2(3N) (INSERT? OR INTERPOS? OR INSINUAT? OR BETWEEN OR SAN- DWICH? OR EMBED? OR BETWIXT OR INTRODUC? OR INTERVEN? OR INTE- RLARD? OR INTERJECT?)
S8	892642	ELECTRODE? ? OR MICROELECTRODE? ? OR ELECTROLYTE? ?
S9	168	S3:S4(S)S5:S8
S10	137	S9(S) (S1 OR S8)
S11	1411386	POLYMER? ? OR HOMOPOLYMER? ? OR COPOLYMER? ? OR TERPOLYMER? ?
S12	73046	S11(6N) (HEAT? OR HOT? ? OR MELT??? ? OR WARM?? ? OR WARMING OR CALEFACT? OR TORREFACT? OR PYROL? OR PYROG? OR SINTER? OR THERMOL? OR THERMAL?)
S13	2789	S11(6N) (TEPEFACT? OR PREHEAT? OR FUSE? ? OR FUSING OR FUSI- ON)
S14	9370	S11(6N) (HIGH OR HIGHER OR RAIS? OR HEIGHTEN) (2N) (TEMP? ? OR TEMPERATURE? OR THERMAL?)
S15	81	S3:S4 AND S5:S7
S16	48	S15 AND (S1 OR S8)
S17	0	S16 AND S12:S14
S18	14	S16 AND S11
S19	0	S15 AND S12:S14
S20	16	S15 AND S11
S21	63115	IC='H01M-004'
S22	19228	IC='H01M-006'
S23	31560	IC='H01M-008'
S24	62522	IC='H01M-010'
S25	236	IC='H01M-011'
S26	3869	MC='A12-E06A'
S27	9897	MC='L03-E01B'
S28	17946	MC='A09-A03'
S29	8267	MC='A08-M09A'
S30	27	S15 AND S21-S27
S31	10	S30 AND (S11 OR S28:S29)
S32	16	S18 OR S20 OR S31

7t32/9/all

32/9/1 (Item 1 from file: 347)
 DIALOG(R)File 347:JAPIO
 (c) 2002 JPO & JAPIO. All rts. reserv.

06767637 **Image available**
 POSITIVE ELECTRODE MATERIAL FOR POLYMER LITHIUM SECONDARY BATTERY AND
 NEGATIVE ELECTRODE MATERIAL FOR POLYMER LITHIUM SECONDARY BATTERY

PUB. NO.: 2000-353510 [JP 2000353510 A]
 PUBLISHED: December 19, 2000 (20001219)
 INVENTOR(s): SHIMAZU KENJI

APPLICANT(s): TOSHIBA BATTERY CO LTD
 APPL. NO.: 11-163818 [JP 99163818]
 FILED: June 10, 1999 (19990610)
 INTL CLASS: H01M-004/02 ; H01M-010/40

ABSTRACT

PROBLEM TO BE SOLVED: To provide a positive **electrode** material for a **polymer** lithium secondary battery which can improve a service life of a charge/discharge cycle of the **polymer** lithium secondary battery.

SOLUTION: In a positive **electrode** material for a **polymer** lithium secondary battery which has a such structure that a positive **electrode** layer 1 of an anti-impregnated nonaqueous **electrolyte** including a **polymer** having a holding mechanism of an active material that stores/discharge a lithium ion and a nonaqueous **electrolyte** is supported to a positive **electrode** current collector 2, a rupture strength of a positive **electrode** layer 1 situated between two positive **electrode** current collectors 2 is not less than 0.190 kgf/cm when the two positive **electrode** current collector 2 are pulled to peel off from the positive **electrode** layer 1 disposed between the positive **electrode** current collector 2 in an inspection laminating material 3 which is laminated in order such that the positive **electrode** layer 1/the positive **electrode** current collector 2/the positive **electrode** layer 1/the positive **electrode** current collector 2/the positive **electrode** layer 1.

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32/9/2 (Item 2 from file: 347)
 DIALOG(R)File 347:JAPIO
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05651271 **Image available**
 EL LAMP

PUB. NO.: 09-266071 [JP 9266071 A]
 PUBLISHED: October 07, 1997 (19971007)
 INVENTOR(s): TANABE KOJI
 CHIKAHISA YOSUKE
 IKOMA HEIJI
 NAMITO MINORU

APPLICANT(s): MATSUSHITA ELECTRIC IND CO LTD [000582] (A Japanese Company or Corporation), JP (Japan)
 APPL. NO.: 08-072703 [JP 9672703]
 FILED: March 27, 1996 (19960327)
 INTL CLASS: [6] H05B-033/26
 JAPIO CLASS: 43.4 (ELECTRIC POWER -- Applications); 14.2 (ORGANIC CHEMISTRY -- High Polymer Molecular Compounds); 42.5 (ELECTRONICS -- Equipment); 44.2 (COMMUNICATION -- Transmission Systems); 44.6 (COMMUNICATION -- Television)
 JAPIO KEYWORD: Roll (LIQUID CRYSTALS)

ABSTRACT

PROBLEM TO BE SOLVED: To provide a thin and highly flexible EL lamp in which a design pattern can be seen at lighting or non-lighting by successively forming a transparent **electrode** layer, the design pattern, a light emitting body layer, a dielectric layer, a back plate layer, and an insulating coat layer on an insulating transparent film by printing.

SOLUTION: A transparent **electrode** layer 2 is formed on an insulating transparent film 1, a design pattern 3 is formed by printing on the transparent **electrode** layer 2, a light emitting body layer 4 using a phosphor powder subjected to moisture preventing treatment is formed by printing on the transparent **electrode** layer 2 and the design pattern 3. A dielectric layer 5 and a back plate layer 6 are successively formed by printing on the light emitting body layer 4. A first **current** collecting **electrode** 6A having one end connected to the back plate

layer 6 and the other end constituting an external connecting part and a second current collecting electrode 2A having one end connected to the transparent electrode layer 2 and the other end forming an external connecting part are formed thereon by printing. An insulating coat layer 7 is formed by printing on the whole upper surface except the tip of the external connecting parts so as to cover them.

32/9/3 (Item 3 from file: 347)
DIALOG(R)File 347:JAPIO
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05539462 **Image available**
GENERATOR

PUB. NO.: 09-154262 [JP 9154262 A]
PUBLISHED: June 10, 1997 (19970610)
INVENTOR(s): MUKAI TAKUZO
MITANI KENZOU
APPLICANT(s): DENSO CORP [000426] (A Japanese Company or Corporation), JP
(Japan)
APPL. NO.: 08-236397 [JP 96236397]
FILED: September 06, 1996 (19960906)
INTL CLASS: [6] H02K-013/00; H01R-039/00; H02K-005/10; H02K-009/06;
H02K-019/22; H02K-019/36
JAPIO CLASS: 43.1 (ELECTRIC POWER -- Generation); 14.2 (ORGANIC CHEMISTRY
-- High Polymer Molecular Compounds); 26.2 (TRANSPORTATION
-- Motor Vehicles); 42.9 (ELECTRONICS -- Other
JAPIO KEYWORD: R124 (CHEMISTRY -- Epoxy Resins)

ABSTRACT

PROBLEM TO BE SOLVED: To achieve a compact configuration of an AC generator for a vehicle by shortening the dimension in the axial direction of the generator having a blower at the edge of a pole core.

SOLUTION: Two current collector rings 41 and two brushes 51 are arranged inside the ring-shaped blade line of a blower 7 in the radial direction, and the axial length of an AC generator 1 for a vehicle is shortened. Furthermore, a current collector ring cover 61 forming a housing chamber 48 housing two current collector rings 41 and two brushes 51 is made to be a very simple cylindrical wall member. Thus, a sucking space for uniformly sucking air is formed toward the entire surface of the ring-shaped blade line of the blower 7. The surrounding parts of two current collector rings 41 are surrounded with a brush holder 59 and the current collector ring cover 61, which are fixed to a rear housing 12. A minute gap 47, which enhances the tightly closing property in the housing chamber 48, is provided between the current collector ring cover 61 and a supporting plate part 44 of the blower 7, which is attached to the edge of a pole core 33.

32/9/4 (Item 4 from file: 347)
DIALOG(R)File 347:JAPIO
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02253250 **Image available**
ELECTRODE FOR PLASTIC BATTERY

PUB. NO.: 62-170150 [JP 62170150 A]
PUBLISHED: July 27, 1987 (19870727)
INVENTOR(s): YOKOISHI SHOJI
NONOBE YASUHIRO
ONISHI TORU
APPLICANT(s): TOYOTA MOTOR CORP [000320] (A Japanese Company or Corporation), JP (Japan)
APPL. NO.: 61-010808 [JP 8610808]
FILED: January 21, 1986 (19860121)
INTL CLASS: [4] H01M-002/26; H01M-002/22; H01M-010/40

JAPIO CLASS: 42.9 (ELECTRONICS -- Other); 14.2 (ORGANIC CHEMISTRY -- High Polymer Molecular Compounds); 26.2 (TRANSPORTATION -- Motor Vehicles)
JAPIO KEYWORD: R052 (FIBERS -- Carbon Fibers)
JOURNAL: Section: E, Section No. 572, Vol. 12, No. 9, Pg. 113, January 12, 1988 (19880112)

ABSTRACT

PURPOSE: To increase the mechanical strength of an **electrode** by forming a projection in each of the first sheet-like current collector made of carbon fibers and the second sheet-like current collector made of aluminum, and alternately stacking them, then arranging a conductive resin between the same projections.

CONSTITUTION: The first current collector 10a is formed by braiding carbon fibers in a 0.4mm thick sheet, and a projection 2a is formed at its upper end. A polypyrrole thin film 3 is formed by electrolytic polymerization on the surface of the current collector 10a except for its projection 2a. The **second current collector** 10b is formed with a 0.4mm thick aluminum sheet, and a projection 2b is formed at its upper end. A lithium thin film is formed by electrolysis on the surface of the current collector 10b except for its projection 2b. Spaces between stacked projections of the first **current collectors** 10a and those between stacked projections of the **second current collectors** 10b are bonded with a conductive resin 5, and a space 4 is formed between the first **current collector** 10a and the **second current collector** 10b. Thereby, a lead wire mounting job is made easy and the possibility of short circuit can be eliminated.

32/9/5 (Item 1 from file: 350)
DIALOG(R) File 350: Derwent WPIX
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014806687 **Image available**
WFI Acc No: 2002-627393/200267
XRAM Acc No: C02-176965
XRPX Acc No: N02-496125

Oxide ion conductive ceramic membrane, used in electrochemical cells for separating oxygen from air or a mixture of gases, has layer of solid electrolyte, bonding layer, porous electrodes, current collectors and coating

Patent Assignee: AIR LIQUIDE SA (AIRL)
Inventor: BACH G; CHAPUT C; DEL GALLO P; GOURIOU G; TERRACOL T
Number of Countries: 100 Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200258829	A1	20020801	WO 2001FR4035	A	20011218	200267 B
FR 2820054	A1	20020802	FR 20011085	A	20010126	200267

Priority Applications (No Type Date): FR 20011085 A 20010126

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
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WO 200258829	A1	F	49	B01D-071/02	
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Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ VN YU ZA ZM ZW

Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ TR TZ UG ZM ZW

FR 2820054	A1		B01D-069/12	
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Abstract (Basic): WO 200258829 A1

NOVELTY - Oxide ion conductive ceramic membrane, having a finite volume and given thickness, comprises:

- (1) a dense layer (CD) of a solid **electrolyte** ;
- (2) a bonding layer (CA);
- (3) two porous **electrodes** of the same or different chemical

compositions;

(4) two porous current collectors applied to the electrodes ; and

(5) at least one porous coating layer

DETAILED DESCRIPTION - Oxide ion conductive ceramic membrane, having a finite volume and given thickness, comprises:

(1) a dense layer (CD) of a solid electrolyte having an oxide ion conductive crystalline structure at electrolysis temperature;

(2) a bonding layer (CA) with an oxide ion conductive crystalline structure, a mixed crystalline structure, or a mixture of the two;

(3) two porous electrodes of the same or different chemical compositions, applied to the surfaces of the solid electrolyte and bonding layers;

(4) two porous current collectors applied to the electrodes ; and

(5) at least one porous coating layer.

The coating layer is made from a material or mixture of materials that is chemically compatible with the materials used for the electrodes , current collectors and electrolyte and having a fritting temperature close to that of such materials.

The solid electrolyte is a ceramic oxide or a mixture of ceramic oxides selected from ZrO₂, CeO₂, HfO₂, ThO₂, Ga₂O₃ or Bi₂O₃, doped with one or more oxides selected from MgO, CaO, BaO, SrO, Gd₂O₃, Sc₂O₃, Yb₂O₃, Er₂O₃, Y₂O₃, Sm₂O₃, In₂O₃, Nb₂O₃ and La₂O₃.

USE - For electrochemical cell used for separating oxygen from air or a mixture of gases.

ADVANTAGE - Improved performance, with reduced risk of degradation.

DESCRIPTION OF DRAWING(S) - The drawing shows a cross-section of an electrochemical cell. (Drawing contains non-English language text).

pp: 49 DwgNo 1A/4

Technology Focus:

TECHNOLOGY FOCUS - **POLYMERS** - Preferred Component: The current collectors can be made with the aid of porogenous substances, e.g. polypropylene waxes such as PropylTex (RTM), polyamides, PTFE or polystyrene spheres

Title Terms: OXIDE; ION; CONDUCTING; CERAMIC; MEMBRANE; ELECTROCHEMICAL; CELL; SEPARATE; OXYGEN; AIR; MIXTURE; GAS; LAYER; SOLID; ELECTROLYTIC; BOND; LAYER; POROUS; **ELECTRODE** ; CURRENT; COLLECT; COATING

Derwent Class: A85; E36; J01; J03; X25

International Patent Class (Main): B01D-069/12; B01D-071/02

International Patent Class (Additional): B01D-053/22; B01D-053/32;

B01D-171-20; C01B-013/02; G01N-027/41; **H01M-008/06 ; H01M-008/10**

File Segment: CPI; EPI

Manual Codes (CPI/A-N): A12-E09; E11-Q01; E31-D01; E34; E35-F; E35-L; E35-M ; E35-N; J01-E03E; J03-A

Manual Codes (EPI/S-X): X25-R01A

Chemical Fragment Codes (M3):

01 C108 C550 C810 M411 M720 M904 M905 M910 N161 Q431 R01779-K R01779-P

02 A428 A657 A940 A980 C108 C550 C730 C801 C802 C803 C804 C805 C807

M411 M781 M904 M905 N161 Q130 Q431 R038 R043 RA83G7-K RA83G7-U

03 A212 A220 A238 A256 A421 A422 A423 A424 A425 A426 A427 A428 A429

A430 A539 A657 A758 A759 A760 A761 A762 A763 A764 A765 A766 A767

A768 A769 A770 A771 A940 A980 C108 C550 C730 C801 C802 C803 C804

C805 C807 M411 M781 M904 M905 N161 Q130 Q431 R038 R043 0072-78104-K

0072-78104-U

04 A212 A220 A238 A256 A421 A422 A423 A424 A425 A426 A427 A428 A429

A430 A539 A657 A758 A759 A760 A761 A762 A763 A764 A765 A766 A767

A768 A769 A770 A771 A940 A980 C108 C550 C730 C801 C802 C803 C804

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0072-78103-U

05 A212 A220 A238 A256 A421 A422 A423 A424 A425 A426 A427 A428 A429

A430 A539 A657 A758 A759 A760 A761 A762 A763 A764 A765 A766 A767

A768 A769 A770 A771 A940 A980 C108 C550 C730 C801 C802 C803 C804

C805 C807 M411 M781 M904 M905 N161 Q130 Q431 R038 R043 0072-78102-K

0072-78102-U

06 A212 A220 A238 A256 A331 A349 A383 A421 A539 A540 A541 A657 A672

A758 A762 A764 A768 A770 A890 A940 A980 C108 C550 C730 C801 C802

Polymer Indexing (P):

<01>
001 018; R00964 G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D83;
H0000; S9999 S1376; F1150 ; P1343
002 018; P0635-R F70 D01
003 018; R00975 G0022 D01 D12 D10 D51 D53 D59 D69 D82 F- 7A; H0000;
P0511
004 018; R00708 G0102 G0022 D01 D02 D12 D10 D19 D18 D31 D51 D53 D58 D76
D88; H0000; S9999 S1456-R; P1741 ; P1752
005 018; ND01; Q9999 Q8060; Q9999 Q7409 Q7330; Q9999 Q7396 Q7330
Derwent Registry Numbers: 1779-P; 1779-U
Specific Compound Numbers: R01779-K; R01779-P; RA83G7-K; RA83G7-U
Generic Compound Numbers: 0072-78104-K; 0072-78104-U; 0072-78103-K;
0072-78103-U; 0072-78102-K; 0072-78102-U; 0072-78101-K; 0072-78101-U
Key Word Indexing Terms:
01 217-0-0-0-CL, PRD 590994-0-0-0-CL, USE 0072-78104-CL, USE
0072-78103-CL, USE 0072-78102-CL, USE 0072-78101-CL, USE

32/9/6 (Item 2 from file: 350)

DIALOG(R)File 350:Derwent WPIX
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014350790 **Image available**
WPI Acc No: 2002-171493/200222
Related WPI Acc No: 2001-071118
XRAM Acc No: C02-052954
XRPX Acc No: N02-130464

Battery having thin profile and flexible structure for use in electronic devices comprises assembly of electrode , separator and counter electrode , sandwiched between two outermost current collectors
Patent Assignee: VALENCE TECHNOLOGY INC (VALE-N)
Inventor: GROSS O J
Number of Countries: 096 Number of Patents: 002
Patent Family:
Patent No Kind Date Applicat No Kind Date Week
WO 200195408 A2 20011213 WO 2001US17097 A 20010525 200222 B
AU 200165021 A 20011217 AU 200165021 A 20010525 200225

Priority Applications (No Type Date): US 2000586849 A 20000605

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 200195408 A2 E 17 H01M-000/00

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA
CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN
IS JP KE KG KP KR KZ LC LR LS LT LU LV MA MD MG MK MN MX MY NZ
PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR
IE IT KE LS LU MC MW NZ NL OA PT SD SE SL SZ TR TZ UG ZW

AU 200165021 A H01M-000/00 Based on patent WO 200195408

Abstract (Basic): WO 200195408 A2

NOVELTY - The battery comprises an assembly of an anode , a counter electrode and a separator disposed between anode and counter electrode . The assembly is sandwiched between two outermost current collectors (12, 14) to form a package. A seal (16) is disposed between the two current collectors for sealing the package.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for battery manufacturing method.

USE - For use as back-up or secondary power supply for electronic devices such as microelectronic application e.g. smart cards, keep-alive circuitry, or low power transponders, especially for portable or hand-held devices.

ADVANTAGE - The battery has thin profile and flexible structure, formed by current collectors. The seal functions to provide an airtight

and water tight package while maintaining the current collectors in spaced-apart relationship.

DESCRIPTION OF DRAWING(S) - The figure shows perspective view of a battery having a thin profile and flexible structure.

Battery (10)
Current collectors (12, 14)
Seal (16)
pp: 17 DwgNo 1/4

Technology Focus:

TECHNOLOGY FOCUS - **POLYMERS** - Preferred Materials: The electrode, separator and the counter electrode comprises a flexible polymer film material such as polyvinylidene difluoride-co-hexafluoropropylene (PVDF-co-HFP). The seal comprises ethylene acrylic acid.

METALLURGY - Preferred Materials: The two counter collectors comprises a flexible metal foil material.

The current collector (14) comprises aluminum foil

Title Terms: BATTERY; THIN; PROFILE; FLEXIBLE; STRUCTURE; ELECTRONIC; DEVICE; COMPRISE; ASSEMBLY; **ELECTRODE**; SEPARATE; COUNTER; **ELECTRODE**; SANDWICH; TWO; OUTER; CURRENT; COLLECT

Derwent Class: A85; L03; X16

International Patent Class (Main): H01M-000/00

File Segment: CPI; EPI

Manual Codes (CPI/A-N): A12-E06; L03-E02; L03-E03

Manual Codes (EPI/S-X): X16-A; X16-B; X16-F01A

Polymer Indexing (PS):

<01>

001 018; R00363 G0555 G0022 D01 D12 D10 D51 D53 D58 D69 D82 F- 7A;
R00976 G0022 D01 D12 D10 D51 D53 D59 D69 D83 F- 7A; H0022 H0011;
S9999 S1285-R; P0555

002 018; ND01; Q9999 Q7341 Q7330; Q9999 Q7330-R; Q9999 Q7498 Q7330;
Q9999 Q9029; Q9999 Q8253 Q8173

003 018; Q9999 Q7409 Q7330; B9999 B4035 B3930 B3838 B3747; K9552 K9483;
K9701 K9676

<02>

001 018; R00326 G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D82;
R00446 G0282 G0271 G0260 G0022 D01 D12 D10 D26 D51 D53 D58 D60 D83
F36 F35; H0022 H0011; P1150; P0088; P0168

002 018; ND01; Q9999 Q7341 Q7330; Q9999 Q7330-R; Q9999 Q7498 Q7330;
Q9999 Q9029; Q9999 Q8253 Q8173

003 018; Q9999 Q9018; K9552 K9483; K9701 K9676; K9712 K9676

32/9/7 (Item 3 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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013892847 **Image available**

WPI Acc No: 2001-377060/200140

XRAM Acc No: C01-115424

XRPX Acc No: N01-276002

Molded electrode for use in secondary battery comprises electrode material with polymer active material, conductivity-enhancer and plasticizer, molded in one piece with current collector sheet

Patent Assignee: NEC CORP (NIDE)

Inventor: FUJIWARA M; HARADA G; KANEKO S; KUROSAKI M; NAKAGAWA Y; NISHIYAMA

T

Number of Countries: 002 Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
GB 2355579	A	20010425	JP 200025172	A	20001013	200140 B
JP 200118565	A	20010427	JP 99292537	A	19991014	200141

Priority Applications (No Type Date): JP 99292537 A 19991014

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
GB 2355579	A		64	H01M-010/40	
JP 200118565	A		15	H01M-004/02	

NOVELTY - Molded **electrode** comprises an **electrode** material (2) and at least one current collector sheet (3). The **electrode** material includes a **polymer** active material, a conductivity-enhancing agent and a plasticizer, and is molded or formed into one piece with the collector sheet.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for:

- (1) A process of forming a molded **electrode** by hot-pressing; and
- (2) A secondary battery which uses the molded **electrode** as the positive and/or negative **electrode**.

USE - As an **electrode** using a **polymer** active material in a secondary battery.

ADVANTAGE - The use of hot-pressing avoids solvent application, during which the solvent evaporates and often generates cracks in the film. The method also enables a thick film to be formed. The energy density of the battery is enhanced relative to previous devices, since the ratio of active material to current collector volume is increased. The plasticizer is chosen to minimize electrical resistance and so maximize power density. Since the **electrode** is not limited to a sheet-type, there is greater scope in battery design.

DESCRIPTION OF DRAWING(S) - The drawing shows a sectional view of a molded **electrode**.

Electrode material (2)

Current collector sheet (3)

Terminal (4)

pp: 64 DwgNo 1/6

Technology Focus:

TECHNOLOGY FOCUS - ELECTRICAL POWER AND ENERGY - Preferred

Electrode : The **electrode** material is formed on at least one side of the current collector sheet(s) to a thickness of between 300 microns and 9 mm. A number of (at least two) current collector sheets are spaced from each other in the direction of the **electrode** thickness. The ratio of the volume of the **electrode** material and the volume of the current collector sheet (excluding the volume of the terminal portion (4) of the current collector sheet) is between 30:1 and 100:1. The amount of plasticizer is 2-15% by weight of the total of the **electrode** material.

Preferred Process: The hot-pressing step forms a molded material.

Electrode manufacture involves hot-pressing the molded material, the same **electrode** material and a different current collector sheet and/or laminating and hot-pressing a number of molded materials together, to form a one-piece molded **electrode**. An uneven die is used in the hot-pressing to form an uneven surface on the **electrode** material.

Title Terms: **ELECTRODE** ; **SECONDARY** ; **BATTERY** ; **COMPRISE** ; **ELECTRODE** ; **MATERIAL** ; **POLYMER** ; **ACTIVE** ; **MATERIAL** ; **CONDUCTING** ; **ENHANCE** ; **ONE** ; **PIECE** ; **CURRENT** ; **COLLECT** ; **SHEET**

Derwent Class: A32; A85; L03; X16

International Patent Class (Main): H01M-004/02 ; H01M-010/40

International Patent Class (Additional): H01M-004/04

File Segment: CPI; EPI

Manual Codes (CPI/A-N): A08-M09A ; A08-P01 ; A09-A03 ; A11-B01 ; A12-E06A ; L03-E01B

Manual Codes (EPI/S-X): X16-E08A

Polymer Indexing (PS):

<01>

001 018; P0000; S9999 S1434

002 018; ND01; ND07; N9999 N6440-R; Q9999 Q7341 Q7330; Q9999 Q7409 Q7330; B9999 B5243-R B4740; B9999 B5378 B5276; N9999 N6462 N6440

003 018; A999 A135; B9999 B3269 B3190

004 018; A999 A384

32/9/8 (Item 4 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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013145692

Image available

WPI Acc No: 2000-317564/200027
XRAM Acc No: C00-096052
XRPX Acc No: N00-238372

Ultracapacitor for creating and storing energy, has two nonporous current collectors, two electrodes separating the electrodes, a separator between the electrodes and an electrolyte

Patent Assignee: GENERAL ELECTRIC CO (GENE)
Inventor: JERABEK E C; LEBLANC O H; WEI C; CHANG W
Number of Countries: 020 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200019463	A1	20000406	WO 99022321	A	19990928	200027 B
US 6256190	B1	20010703	US 98162527	A	19980929	200140

Priority Applications (No Type Date): US 98162527 A 19980929

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 200019463 A1 E 26 H01G-009/00

Designated States (National): JP

Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LU

MC NL PT SE

US 6256190 B1 H01G-009/00

Abstract (Basic): WO 200019463 A1

NOVELTY - Ultracapacitor (10) has at least one cell comprising two solid, nonporous current collectors (22); two porous **electrodes** (14, 16) **separating the current collectors**; a porous **separator** (18) between the **electrodes**; and an **electrolyte** (20) occupying pores in the **electrodes** and separator, and which includes a cyclic carbonate solvent, and a cyclic ester solvent and an **electrolyte salt**.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

- (A) a stack of ultracapacitor cells;
- (B) a method of making an ultracapacitor, comprising sealing the cell to form the ultracapacitor; and
- (C) a method of making a stack of ultracapacitor cells, comprising providing bipolar double layer ultracapacitor cells in stacked relationship and a non-porous **current collector between each cell** with each collector having adjoining polarized **electrodes** of different cells bonded, saturating the **electrodes** and separators with the **electrolyte**, and sealing the cells, **current collectors**, and **separators** to form a stack of ultracapacitor.

USE - Ultracapacitor is used for creating and storing energy.

ADVANTAGE - The improved **electrolyte** composition has increased conductivity and lower internal resistance which in turn provides power and energy performance enhancement, and cost reduction in an ultracapacitor.

DESCRIPTION OF DRAWING(S) - The drawing shows a front sectional view of an ultracapacitor.

Ultracapacitor (10)
Electrodes (14, 16)
Separator (18)
Electrolyte (20)
Collectors (22)
pp: 26 DwgNo 1/4

Technology Focus:

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Components: The **electrolyte** comprises additional aprotic organic solvent(s) comprising a chain carbonate, preferably dimethyl carbonate (DMC). The cyclic carbonate solvent comprises propylene carbonate (PC). The cyclic ester solvent comprises gamma-butyrolactone (GBL).

INORGANIC CHEMISTRY - Preferred Collectors: The current collectors comprise an aluminum substrate, or carbon.

Preferred **Electrolyte**: The **electrolyte salt** comprises a quaternary ammonium salt preferably tetraethylammonium tetrafluoroborate salt, a hexasubstituted quaternium salt or a lithium salt.

POLYMERS - Preferred Separator: The separator is polypropylene or

cellulosic tissue material

Title Terms: STORAGE; ENERGY; TWO; CURRENT; COLLECT; TWO; ELECTRODE ;
SEPARATE; ELECTRODE ; SEPARATE; ELECTRODE ; ELECTROLYTIC
Derwent Class: A85; E19; L03; V01; X16
International Patent Class (Main): H01G-009/00
International Patent Class (Additional): H01G-009/022; H01G-009/038
File Segment: CPI; EPI
Manual Codes (CPI/A-N): A12-E07B; E05-A; E07-A02C; E07-A02G; E07-A03C;
E07-A04; E10-A17B; E10-A22G; E31-N04; E33-G; L03-B03A
Manual Codes (EPI/S-X): V01-B01B3; V01-B01B5; V01-B01D1; V01-B01X; X16-L02
Chemical Fragment Codes (M3):

- *01* A313 C810 M411 M424 M740 M782 M904 M905 Q010 Q130 Q454 R038 R043
R03167-K R03167-M
- *02* C106 C810 M411 M424 M740 M782 M904 M905 M910 Q010 Q130 Q454 R038
R043 R01669-K R01669-M R05085-K R05085-M
- *03* H7 H721 M210 M212 M231 M320 M423 M424 M510 M520 M530 M540 M610 M740
M782 M904 M905 M910 Q010 Q130 Q454 R043 RA009X-K RA009X-M
- *04* M423 M424 M740 M782 M904 M905 M910 Q010 Q130 Q454 R043 R01852-K
R01852-M
- *05* B205 B720 B752 B809 B831 C009 C100 C800 C803 C804 C805 C806 C807 H1
H181 K0 L7 L722 M210 M212 M273 M283 M320 M411 M424 M510 M520 M530
M540 M620 M640 M740 M782 M904 M905 Q010 Q130 Q454 R023 R03324-K
R03324-M
- *06* A103 A940 A960 C710 C730 M411 M417 M424 M740 M782 M904 M905 Q010
Q130 Q454 R023 R07763-K R07763-M
- *07* K0 L2 L250 L7 L722 M210 M211 M212 M213 M214 M215 M216 M220 M221 M222
M223 M224 M225 M226 M231 M232 M233 M273 M283 M320 M416 M424 M620
M640 M650 M740 M782 M904 M905 Q010 Q130 Q454 R023 0016-71402-K
0016-71402-M
- *08* F012 F014 F140 J5 J521 L9 L922 M210 M211 M240 M281 M320 M413 M424
M510 M521 M530 M540 M740 M782 M904 M905 M910 Q010 Q130 Q454 Q615
R023 R00844-K R00844-M
- *09* F012 F113 J5 J521 L9 L942 M280 M320 M413 M424 M510 M521 M530 M540
M740 M782 M904 M905 M910 Q010 Q130 Q454 Q615 R023 R00644-K R00644-M
- *10* F021 J5 J521 L9 L922 L942 M280 M320 M413 M424 M510 M521 M530 M540
M740 M782 M904 M905 Q010 Q130 Q454 Q615 R023 0016-71401-K
0016-71401-M

Polymer Indexing (PS):

- <01>
- *001* 018; R00964 G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D83;
H0000; P1150 ; P1343
- *002* 018; G3634-R D01 D03 D11 D10 D23 D22 D31 D42 D76 F24 F34 H0293
P0599 G3623
- *003* 018; ND01; Q9999 Q7363 Q7330

Derwent Registry Numbers: 0644-U; 0844-U; 1669-U; 1852-U

Specific Compound Numbers: R03167-K; R03167-M; R01669-K; R01669-M; R05085-K;
R05085-M; RA009X-K; RA009X-M; R01852-K; R01852-M; R03324-K; R03324-M;
R07763-K; R07763-M; R00844-K; R00844-M; R00644-K; R00644-M

Generic Compound Numbers: 0016-71402-K; 0016-71402-M; 0016-71401-K;
0016-71401-M

Key Word Indexing Terms:

- *01* 110-0-0-0-CL 2211-0-0-0-CL 104471-0-0-0-CL 90356-0-0-0-CL
392-0-0-0-CL 99497-0-0-0-CL 1956-0-0-0-CL 780-0-0-0-CL
0016-71402-CL 0016-71401-CL

32/9/9 (Item 5 from file: 350)

DIALCG(R)File 350:Derwent WPIX
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012923792 **Image available**

WPI Acc No: 2000-095628/200008

XRAM Acc No: C00-027776

XPFX Acc No: N00-073758

Electrochemical cell with ion exchange polymer separator for fuel cells

Patent Assignee: DU PONT DE NEMOURS & CO E I (DUPO)

Inventor: BANERJEE S; BLOOMFIELD D P; FERRIS J J; POLEVAYA O Y

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicant No	Kind	Date	Week
US 5989741	A	19991123	US 9749116	A	19970610	200008 B
			US 9749672	A	19970616	
			US 9893319	A	19980608	

Priority Applications (No Type Date): US 9893319 A 19980608; US 9749116 P 19970610; US 9749672 P 19970616

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5989741	A		11	H01M-008/10	Provisional application US 9749116
					Provisional application US 9749672

Abstract (Basic): US 5989741 A

NOVELTY - A cell has a separator with an **anode** surface (18) of **anodes** (20) and **cathode** surface (22) of **cathodes** (24) and exposed to their corresponding compartments. The **electrodes** with electrically conductive catalyst particles are separated by an ion exchange **polymer** (26). The **electrodes** are connected with each other to form a cells. A feed region (32) connects the **electrodes** of adjacent cells.

DETAILED DESCRIPTION - An electrochemical cell (10) has an **anode** (12), **cathode** compartment (14) separated by a separator (16). The separator contains several current collector screen (30). A feed through region connects the **anode** and **cathode** of adjacent cells.

An INDEPENDENT CLAIM is also included for the process of making a separator in which conductive screens, sheets of thermoplastic ion exchange precursor are overlapped such that sheets are positioned between adjacent screens. The laminate is pressed by heating to a sufficient temperature such that the **polymers** are softened and the screens get attached to form unitary structure with first and second surfaces. The screen at the overlapped portion is separated by ion exchange **polymer** precursor. Subsequently ion exchange **polymer** is hydrolyzed and several **electrodes** with electrically conductive catalyst particle are arranged side by side on the first and second unitary structure of overlapped portion. The **electrodes** on the first side is connected to the second side to form counter **electrode** pairs.

USE - For fuel cells in production of electrical energy.

ADVANTAGE - The ion exchange **polymer** **electrolyte** is less complicated, lighter and easier for transportation. The **anodes** and **cathodes** has good gas permeability. The collector screen and the ion exchanger resin, are partially embedded to enhance permeability of gases. The electricity cost is reduced when electrochemical cell is used.

DESCRIPTION OF DRAWING(S) - The figure shows the cross sectional view of the electrochemical cell.

Electrochemical cell (10)
Anode (12)
Cathode compartment (14)
 Separator (16)
Anode surface (18)
Anodes (20)
Cathode surface (22)
Cathodes (24)
 Ion exchange **polymer** (26)
 Current collector screen (30)
 Feed region (32)
 pp: 11 DwgNo 1/4

Technology Focus:

TECHNOLOGY FOCUS - INORGANIC CHEMISTRY - Preferred Cell: The collector current has an open area of 55-65%. The collector screens are flexible and made of metal, slit or expanded titanium sheets. The slit and titanium metal sheets has a coating of titanium nitride. The collector screens contains layer(s) reinforced with the separator to at least 93% of the collector area. The pressing process is performed at 200-260 degreesC and hydrolyzing is performed before the **electrodes** are formed to unitary structure. The screens has an open region of 55-65 %. The collector screen is sole electrical conductor between adjacent cells. The collector screen is partially embedded in ion

exchange polymer at anode contact region and cathode contact region such that the ion exchange polymer partially fills the pores of the polymer screen. The ion exchange polymer inter penetrates the feed through region to prevent the bulk flow of material between anode and cathode compartment. The ion exchange polymer is fluorinated sulfonic acid polymer. The pressing causes current collector screen to partially embed in thermoplastic ion exchange polymer at the overlapped region such that the polymer precursor partially fills the pores of the screen. The screens and sheets which are elongated are overlapped along the length direction and pressed to form unitary structure. Subsequently, the unitary structure is cut to predetermined length. The sheets and screens are positioned and pressed continuously. The polyurethane adhesive film is formed on the surface of the separator and pressed by heat and contacting to the periphery of the separator.

Title Terms: ELECTROCHEMICAL; CELL; ION; EXCHANGE; POLYMER; SEPARATE; FUEL; CELL

Derwent Class: A85; L03; X16

International Patent Class (Main): H01M-008/10

File Segment: CPI; EPI

Manual Codes (CPI/A-N): A10-E09; A11-B09A2; A11-C01A; A12-E06B; A12-E09; A12-M; L03-E04

Manual Codes (EPI/S-X): X16-C01C; X16-E06A

Polymer Indexing (PS):

<01>

001 018; D60 F62 S- 6A O- F- 7A; H0317; S9999 S1581; L9999 L2391; L9999 L2313; M9999 M2313; P0500 F- 7A

<02>

001 018; P1592-R F77 D01; S9999 S1581

002 018; ND01; ND07; N9999 N7192 N7023; N9999 N5721-R; K9416; K9701 K9676; Q9999 Q7410 Q7330; Q9999 Q7396 Q7330; Q9999 Q7818-R; K9483-R ; K9574 K9483; K9610 K9483
003 018; Q9999 Q9018; Q9999 Q6644-R

32/9/10 (Item 6 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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011469293 **Image available**

WPI Acc No: 1997-447200/199741

XRFPA Acc No: N97-372696

Piezoelectric vibration converter for internal combustion engine diagnostics - has piezo-element in form of vibrator used as sensing unit, polymeric yoke acting as filter and current collecting metallic plates

Patent Assignee: KOSHETOV A A (KOSH-I)

Inventor: FEDOROV V V; KOSHETOV A A

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
RU 2075048	C1	19970310	RU 9413437	A	19940418	199741 B

Priority Applications (No Type Date): RU 9413437 A 19940418

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

RU 2075048 C1 5 G01L-023/10

Abstract (Basic): RU 2075048 C

Vibrator power supply comprises the yoke (9) made of a polymer and placed in its body (1). The yoke (9) acts as a filter and has the piezo-element (11) arranged in its groove. One half of the piezo-element (11) is tightly compressed between two current collecting plates (10) and the other part is free. The yoke (9) with the piezo-element (11) is placed in the spacer bar between the vibro-probe (3) and the screw (6) controlling the vibrator power supply sensitivity. The yoke (9) free position inside the body (1) allows the piezo-crystal to form a signal entering the vibro-probe (3) and the sensor (11) through the yoke (9) surface.

The deformation wave passing through the vibro-probe (3) retains the mechanical wave intensity and enters the yoke (9) surface where it scatters. A vibration pulse representing the data is formed. The pulse enters the piezo-element (11) surface. The yoke with the piezo-crystal (11) is placed inside the body in such a way that the temperature effect on the vibration processes measurement is eliminated. The vibrator power supply is mounted on the body (1) surface of the mechanism to be diagnosed with the help of magnetic plates (4) fixed on the metallic disk (2) body. The vibro-probe (3) contacts the mechanism through an opening in the guiding sleeve.

USE/ADVANTAGE - For internal combustion engine, reduction gear and metal cutting machine diagnostics. Vibrator power supply structure is simplified and measuring accuracy is increased.

Dwg.1/3

Title Terms: PIEZOELECTRIC; VIBRATION; CONVERTER; INTERNAL; COMBUST; ENGINE ; DIAGNOSE; PIEZO; ELEMENT; FORM; VIBRATION; SENSE; UNIT; POLYMERISE ; YOKE; ACT; FILTER; CURRENT; COLLECT; METALLIC; PLATE

Derwent Class: S02

International Patent Class (Main): G01L-023/10

File Segment: EPI

Manual Codes (EPI/S-X): S02-E; S02-F04D3; S02-J01A

32/9/11 (Item 7 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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011096859 **Image available**

WPI Acc No: 1997-064783/199706

Related WPI Acc No: 1994-092324; 1995-107008; 1995-215410; 1995-245707;

1996-011167; 1996-019761; 1996-361855; 1996-505380

XRAM Acc No: C97-021261

XREF Acc No: N97-053372

Low resistance rechargeable lithium ion battery - with perforated current collector embedded in polymeric intercalation electrodes to reduce resistance

Patent Assignee: BELL COMMUNICATIONS RES INC (BELL-N)

Inventor: GOZDE A S; SCHMUTZ C N; TARASCON J; WARREN P C

Number of Countries: 027 Number of Patents: 010

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5587253	A	19961224	US 9326904	A	19930305	199706 B
			US 93110262	A	19930823	
			US 93160018	A	19931130	
			US 95510835	A	19950803	
WO 9706569	A1	19970220	WO 960811732	A	19960715	199714
AU 9664571	A	19970305	AU 9664571	A	19960715	199726
EP 842547	A1	19980520	EP 96923775	A	19960715	199824
			WO 960811732	A	19960715	
TW 324113	A	19980101	TW 96109321	A	19960802	199827
JP 10510669	W	19981013	WO 960811732	A	19960715	199851
			JP 97508441	A	19960715	
AU 700453	B	19990107	AU 9664571	A	19960715	199913
MX 9800869	A1	19980401	MX 98869	A	19980130	200004
IL 118907	A	20000131	IL 118907	A	19960722	200015
JP 3164586	B2	20010508	WO 960811732	A	19960715	200128
			JP 97508441	A	19960715	

Priority Applications (No Type Date): US 95510835 A 19950803; US 9326904 A 19930305; US 93110262 A 19930823; US 93160018 A 19931130

Cited Patents: US 4939050; US 5004657

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5587253	A	15	H01M-004/64		CIP of application US 9326904
					CIP of application US 93110262
					CIP of application US 93160018
					CIP of patent US 5296318
					CIP of patent US 5418091

WO 9706569 A1 E 29 H01M-004/64
 Designated States (National): AU CA JP KR MX SG VN
 Designated States (Regional): AT BE CH DE DK ES FI FR GB GR IE IT LU MC
 NL PT SE
 AU 9664571 A H01M-004/64 Based on patent WO 9706569
 EP 842547 A1 E H01M-004/64 Based on patent WO 9706569
 Designated States (Regional): BE DE DK ES FI FR GB IE IT NL SE
 TW 324113 A H01M-010/36
 JP 10510669 W 25 H01M-010/40 Based on patent WO 9706569
 AU 700453 B H01M-004/64 Previous Publ. patent AU 9664571
 Based on patent WO 9706569
 MX 9800869 A1 H01M-004/64
 IL 118907 A H01M-004/64
 JP 3164586 B2 10 H01M-010/40 Previous Publ. patent JP 10510669
 Based on patent WO 9706569

Abstract (Basic): US 5587253 A

A rechargeable Li ion battery comprises positive (23) and negative (27) **electrode layer** elements with **current collectors** (21) and a **separator** between them (25). Each element comprises a flexible **polymer** matrix bonded to a unitary flexible structure, the positive element comprises a Li ion-intercalating cpd. selected from LiMn_2O_4 , Li_2CoO_2 and Li_2NiO_2 and at least one of the **current collectors** is **embedded** within its **electrode layer**.

Also claimed is a battery structure as above comprising many positive elements as above, a negative element between each of the positives contg. C as a Li-intercalating material, many flexible **polymer** sepn. elements contg. an organic soln. of a dissociable Li salt and sepg. the negative and positive **electrodes**, and many **embedded current collectors**, the whole forming a unitary flexible structure.

USE - Used for flexible rechargeable Li ion batteries

ADVANTAGE - The distance between the **electrode layer** and **current collector** is reduced thus lowering internal resistance. Cell capacity is also increased.

Dwg. 2/3

Title Terms: LOW; RESISTANCE; RECHARGE; LITHIUM; ION; BATTERY; PERFORATION; CURRENT; COLLECT; EMBED; **POLYMERISE**; INTERCALATED; **ELECTRODE**; REDUCE; RESISTANCE

Derwent Class: A85; L03; X16

International Patent Class (Main): H01M-004/64; H01M-010/36;

H01M-010/40

International Patent Class (Additional): H01M-002/16; H01M-004/02;

H01M-004/62

File Segment: CPI; EPI

Manual Codes (CPI/A-N): A12-E06B; L03-E01B5

Manual Codes (EPI/S-X): X16-B01F1; X16-E02

Polymer Indexing (PS):

<01>

001 018; R00363 G0555 G0022 D01 D12 D10 D51 D53 D58 D69 D82 F- 7A;

H0011-R; S9999 S1285-R

002 018; ND01; Q9999 Q7341 Q7330; Q9999 Q7498 Q7330; B9999 B4035 B3930

B3938 B3747

003 018; A999 A384

32/9/12 (Item 8 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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010966584 **Image available**

WPI Acc No: 1996-463533/199646

Related WPI Acc No: 1995-392601

XRAM Acc No: C96-145496

XRPX Acc No: N96-390405

Improved lithium ion battery having reduced corrosion - has electrodes on which current collectors comprise polymer layer contg.

electroconductive particles

Patent Assignee: DASGUPTA S (DASG-I); JACOBS J K (JACO-I)

Inventor: DASGUPTA S; JACOBS J K

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5547782	A	19960820	US 94204439	A	19940302	199646 B
			US 95402359	A	19950313	

Priority Applications (No Type Date): US 94204439 A 19940302; US 95402359 A 19950313

Patent Details:

Patent No	Kind	Lang	Pg	Main IPC	Filing Notes
US 5547782	A		7	H01M-004/66	Div ex application US 94204439 Div ex patent US 5464706

Abstract (Basic): US 5547782 A

Improved lithium ion battery has an **anode** comprising a positive active material capable of reacting with lithium ions in discharging the battery and releasing lithium ions in charging the battery, the **anode** having two opposing major faces; a **cathode** comprising a negative active material capable of releasing lithium ions in discharging the battery and intercalating lithium ions in charging the battery, the negative **electrode** having two opposing major faces; a non-aq. **electrolyte** contg. a lithium salt capable of ionic dissociation; a first current collector in contact with a distal major face of the **anode**; a **second current collector** in contact with a distal major face of the **cathode**; and metallic electrical lead means in juxtaposed contact position with of external face of each of the current collectors. The first current collector is an electroconductive, continuous and coherent **polymer** layer, the **polymer** layer consisting essentially of an electrically non-conductive, continuous and coherent **polymer** laminate having a thickness, and having dispersed in it more than 35 vol.% electroconductive particles e.g. titanium nitride, zirconium nitride, fine carbon, carbon black or carbon fibres. The conductive particles has major and minor dimensions.

USE - The current collectors are used in lithium ion batteries.

ADVANTAGE - The current collectors reduce corrosive interaction with the **electrode** fuse.

Dwg.1/4

Title Terms: IMPROVE; LITHIUM; ION; BATTERY; REDUCE; CORROSION; **ELECTRODE**; **CURRENT**; COLLECT; COMPRISE; **POLYMER**; LAYER; CONTAIN; **ELECTROCONDUCTING**; PARTICLE

Derwent Class: A85; L03; X16

International Patent Class (Main): H01M-004/66

File Segment: CPI; EPI

Manual Codes (CPI/A-N): A08-M09A; A09-A03; A12-E06; L03-E01B5

Manual Codes (EPI/S-X): X16-A02A; X16-B01F1; X16-E02

Polymer Indexing (PS):

<01>

001 018; R00964 G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D83; H0000; S9999 S1456-R; P1150; P1343

002 018; ND01; K9416; Q9999 Q7341 Q7330; Q9999 Q7818-R; K9701 K9676; K9483-R; B9999 B5209 B5185 B4740; B9999 B4591 B4568; B9999 B3270 B3190; B9999 B5243-R B4740

003 018; D00 N- 5A T1 4B Tr; A999 A135; S9999 S1456-R

004 018; D00 N- 5A T1 4B Tr; A999 A135; S9999 S1456-R

005 018; R01669 D00 D09 C- 4A; R05085 D00 D09 C- 4A; S9999 S1456-R; A999 A135

006 018; R05086 D00 D09 C- 4A; A999 A135; S9999 S1456-R

<02>

001 018; R00964 G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D83; H0000; S9999 S1581; P1150; P1343

002 018; ND01; K9416; Q9999 Q6780; Q9999 Q7341 Q7330

009887855 **Image available**

WPI Acc No: 1994-167770/199420

KRPX Acc No: N94-132008

Polymer electrolyte battery - has liq. electrolyte substituted for
layers of polymer electrolyte isolating electrodes from different
potential electrodes in multi-cell battery

Patent Assignee: VALENCE TECHNOLOGY INC (VALE-N)

Inventor: CHEU S S

Number of Countries: 046 Number of Patents: 003

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 9410710	Al	19940511	WO 93US10346	A	19931028	199420 B
AU 9455418	A	19940524	WO 93US10346	A	19931028	199434
			AU 9455418	A	19931028	
US 5674641	A	19971007	US 92968368	A	19921029	199746

Priority Applications (No Type Date): US 92968368 A 19921029

Cited Patents: EP 199476; GB 1209336; US 3005864; US 3201279

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 9410710 Al E 41 H01M-002/26

Designated States (National): AT AU BB BG BR BY CA CH CZ DE DK ES FI GB
HU JP KP KR KZ LK LU LV MG MN MW NL NO NZ PL PT RO RU SD SE SK UA UZ VN

Designated States (Regional): AT BE CH DE DK ES FR GB GR IE IT LU MC NL

OA PT SE

AU 9455418 A H01M-002/26 Based on patent WO 9410710

US 5674641 A 14 H01M-006/18

Abstract (Basic): WO 9410710 A

Electrodes in a multi-cell battery are separated by layers of
polymer electrolyte from different potential electrodes. A number
of batteries are stacked, the electrodes of each being electrically
connected along with potential electrodes giving module desired power
characteristics.

Electrically conductive spaces connect tabs on electrodes and
different potential electrodes to those on others. They also prevent
damage to the tabs from excessive bending.

ADVANTAGE - Small, lightweight, reduces number of current
collectors.

Dwg. 1/8

Abstract (Equivalent): US 5674641 A

A laminar electrochemical cell having an anode that includes an
anode current collector and a layer of anode material that is
applied on a surface of the anode current collector, a cathode that
includes a cathode collector and a layer of cathode material that
is applied on a surface of the cathode current collector, and a
polymer electrolyte that is interposed between the anode and
cathode with said polymer electrolyte being in contact with a
surface of the anode material and with a surface of the cathode
material, wherein the improvement comprises means for masking at least
a portion of the outer periphery of the anode material sufficient to
prevent electrical contact of the anode material to the cathode
material.

Dwg. 8/8

Title Terms: POLYMER; ELECTROLYTIC; BATTERY; LIQUID; ELECTROLYTIC;
SUBSTITUTE; LAYER; POLYMER; ELECTROLYTIC; ISOLATE; ELECTRODE;
POTENTIAL; ELECTRODE; MULTI; CELL; BATTERY

Derwent Class: X16

International Patent Class (Main): H01M-002/26; H01M-006/18

International Patent Class (Additional): H01M-006/46

File Segment: EPI

Manual Codes (EPI/S-X): X16-A; X16-F03A; X16-F06

009703620 **Image available**
WPI Acc No: 1993-397173/199350
XRAM Acc No: C93-176735
XREF Acc No: N93-306986

Electrochemical generators and super condensers prodn. - by conductive ion ink screen printing current collector , electrode, electrolytic separator and encapsulating layers in situ e.g. on circuit board with electronically conductive material

Patent Assignee: ALCATEL ALSTHOM CIE GEN ELECTRICITE (COGE)

Inventor: ANDRIEU X; BOEUVÉ J

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
FR 2690567	Al	19931029	FR 925094	A	19920424	199350 B

Priority Applications (No Type Date): FR 925094 A 19920424

Patent Details:

Patent No	Kind	Lang	Pg	Main IPC	Filing Notes
FR 2690567	Al		5	H01M-006/40	

Abstract (Basic): FR 2690567 A

The prodn. comprises stacking a first current collector, a first **electrode** , an electrolytic separator, a second **electrode** , a **second current collector** and an encapsulating agent, and (i) a conductive ionic screen printing ink is prep'd. comprising an intimate mixt. of (a) an ionically conductive **polymer** , (b) a soluble salt which is dissociated in the **polymer** and (c) a solvent with a low vapour pressure in which the **polymer** (a) and the soluble salt (b) are soluble; (ii) to fabricate the **electrode** (s), a homogeneous powdered mixt. of an electrochemically active material (I) and an electronically conductive material (II) in an amt. of 0-30 wt.% w.r.t. the (I) is incorporated into the conductive ionic ink (i); (iii) the first **electrode** is obt'd. by screen printing layer(s) of the compsn. (ii) onto the first current collector; and (iv) the electrolytic separator is obt'd. by screen printing layer(s) of the conductive ionic screen printing ink onto the first **electrode** .

Pref. the second **electrode** is formed on the electrolytic separator by screen printing. The encapsulating material is pref. also applied by screen printing over the stack.

The conductive ionic **polymer** is pref. of linear **polymers** and crosslinkable **polymers** e.g. in EP-424827, and esp. a polyether oxide. The ionic salt is used e.g. in an amt. of 0.1-2 moles per litre of **polymer** . The solvent is of e.g. propylene or butylene carbonate, terpineol, glycol derivs. and mixts. of these. (I) for a super condenser is e.g. carbonaceous material with a high specific surface, metallic oxides and electroconductive **polymers** . (I) for the **cathode** of an electrochemical generator with a carbon or Li **anode** is of e.g. metallic oxides, selenides, (phospho) sulphides or oxyhalides or electroconductive **polymers** . (II) is of e.g. metallic and carbonaceous materials.

USE/ADVANTAGE - The electrochemical generators and supercondensers may be fabricated in situ by screen printing onto flexible or rigid substrates e.g. electronic circuit boards. Use of screen printing allows the devices to be made very thin (e.g. with layer thicknesses of less than 10 microns) and with any pref. shape, and is very useful for automated prodn. techniques.

Dwg. 2/3

Title Terms: ELECTROCHEMICAL; GENERATOR; SUPER; CONDENSER; PRODUCE; CONDUCTING; ION; INK; SCREEN; PRINT; CURRENT; COLLECT; **ELECTRODE** ; ELECTROLYTIC; SEPARATE; ENCAPSULATE; LAYER; SITU; CIRCUIT; BOARD; ELECTRONIC; CONDUCTING; MATERIAL

Derwent Class: A85; G02; L03; P74; V01; X16

International Patent Class (Main): H01M-006/40

International Patent Class (Additional): B41F-015/00; H01G-009/24;

H01M-004/60 ; H01M-006/18

File Segment: CPI; EPI; EngPI
 Manual Codes (CPI/A-N): A12-E06; A12-E06B; G02-A05B; L03-A01C; L03-A02D
 Manual Codes (EPI/S-X): V01-B01G1; V01-B01G5; V01-B01G8A; V01-B01G8D;
 V01-B01G8E; X16-L02
 Plascod Codes (KS): 0013 0231 1279 1588 1594 2020 2211 2319 2551 2740 3276
 3277
 Polymer Fragment Codes (PF):
 001 017 028 04- 147 198 231 308 336 342 473 506 509 554 564 623 627 628
 688 720 725
 Polymer Indexing (PS):
 <01>
 001 017; R00351 G1558 D01 D23 D22 D31 D42 D50 D82 F47; H0000; P0964-R
 F34; P0975 P0964 F34
 002 017; ND01; K9621-R; B9999 B3269 B3190; B9999 B4988-R B4977 B4740;
 Q9999 Q7396 Q7330; Q9999 Q7363 Q7330; Q9999 Q7454 Q7330
 003 017; A999 A135

32/9/15 (Item 11 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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009204548 **Image available**

WPI Acc No: 1992-331980/199240

XRAM Acc No: C92-147632

XRPX Acc No: N92-253556

Integral solid state embedded power supply - comprises current collectors
 inlaid in a substrate and coupled to electrodes

Patent Assignee: MOTOROLA INC (MOTI)

Inventor: MORE G

Number of Countries: 002 Number of Patents: 005

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 9216025	A1	19920917	WO 92US909	A	19920206	199240 B
US 5180645	A	19930119	US 91662598	A	19910301	199306
EP 573595	A1	19931215	EP 92908317	A	19920206	199350
			WO 92US909	A	19920206	
JP 6505592	W	19940623	JP 92508133	A	19920206	199429
			WO 92US909	A	19920206	
EP 573595	A4	19951129	EP 92908317	A	19920000	199627

Priority Applications (No Type Date): US 91662598 A 19910301

Cited Patents: US 2523354; US 4822701; US 5019467; US 5019468; 6.Jnl.Ref;
 EP 350235; JP 2086055; JP 2089696; JP 2100268; JP 55104071; JP 58053162;
 JP 60012679

Patent Details:

Patent No	Kind	Lang	Pg	Main IPC	Filing Notes
WO 9216025	A1	E	15	H01M-002/22	
US 5180645	A		7	H01M-002/22	
EP 573595	A1	E		H01M-002/22	Based on patent WO 9216025
JP 6505592	W		5	H01M-002/22	Based on patent WO 9216025
EP 573595	A4			H01M-002/22	

Abstract (Basic): WO 9216025 A

Battery integrally formed in a substrate (2) comprises first
 current collector (4) embedded in the substrate and coupled to a
 first electrode (14); second current collector (6) coupled to a
 second electrode (16); and a solid electrolyte (8) between first
 and second electrodes. The substrate is pref. a flexible circuit
 carrying substrate or a portion of a housing.

Specifically collectors are expanded metal, screens or foils of
 Ni, Cu, Al and/or Cr. First electrode comprises Li (alloy), lithiated
 C cpds. or an Li-doped polymer selected from polyphenylene,
 polypyrrole and polyaniline and their derivs.. The second electrode
 is TiS₂, VOX, a doped Li polymer or a redox polymer.

The solid electrolyte is a conductive polymer selected from
 poly-ethylene oxide, poly-phosphazene and poly-propylene oxide.

USE/ADVANTAGE - In portable equipment, esp. a radio (claimed)

Integrated battery results in smaller overall size, lighter overall wt. and lower mfg. cost of the equipment.

Dwg. 1/4

Abstract (Equivalent): US 5180645 A

A battery integrally formed in a substrate comprises (a) a first current collector (pref. expanded metal, metal screens and metal foils) embedded in the substrate (pref. a portion of housing) and further coupled to a first **electrode** (pref. comprising lithium alloys); (b) a **second current collector** coupled to a second **electrode** (pref. comprises metal chalcogenides); and (c) a solid state **electrolyte** between the first **electrode** and the second **electrode**. (c) is pref. comprised of conductive **polymer** materials such as polyethyleneoxide.

USE/ADVANTAGE - The integral battery built into or as part of an equipment housing results in smaller overall size, lighter overall wt. and lower fabrication cost of the portable equipment.

(Dwg. 1/4

Title Terms: INTEGRAL; SOLID; STATE; EMBED; POWER; SUPPLY; COMPRISE;

CURRENT; COLLECT; INLAY; SUBSTRATE; COUPLE; **ELECTRODE**

Derwent Class: L03; W01; W02; X16

International Patent Class (Main): H01M-002/22

International Patent Class (Additional): H01M-002/10

File Segment: CPI; EPI

Manual Codes (CPI/A-N): L03-E01D

Manual Codes (EPI/S-X): W01-C01D3A; W01-C01D3C; W01-C01E5B; W02-G02A1;

X16-F03A

32/9/16 (Item 12 from file: 350)

DIALOG(R) File 350: Derwent WPIX

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008612972 **Image available**

WPI Acc No: 1991-117002/199116

Related WPI Acc No: 1989-078670

XRAM Acc No: C91-050339

XREF Acc No: N91-090099

Battery with a three-layer tablet structure - is easy to mfr. and has low resistance and good charging discharging properties

Patent Assignee: SHARP KK (SHAF)

Inventor: YONEDA T

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5004657	A	19910402	US 89449450	A	19891212	199116 B

Priority Applications (No Type Date): JP 87225997 A 19870909

Abstract (Basic): US 5004657 A

A simply mfd. battery comprises a cell tablet having, sequentially, positive **electrode** (5), **electrolyte** (6) and negative **electrode** (7) powder compns., is sandwiched between two current - collector plates (9) and has electron conductors (4) on or in the **electrode** powder compns. The cell is pressurised to form a four- or five-layered tablet and to reduce internal resistance. The **electrode** powders comprise a positive or negative active material, electroconductive material, binding agent and solid **electrolyte**.

The positive active material is MnO₂ or NiO₂, the negative is TiNi, TiNiB_{0.01}, TiNiMn_{0.01}, LaNi₅ or TiFe, the electroconductive material is acetylene black, there is 3-20 wt.% of binder, the solid **electrolyte** is SnO₂.3H₂O or Sb₂O₅.3-6H₂O at 10-60 wt.% in the **electrode** powders, and the electron conductors are metals, metal-coated materials, or electroconductive **polymers** or ceramics.

Also claimed is the battery above, specifying that the positive active material may also be of WO₃, PbO₂ or MoO₃, the electroconductive material may be other carbon blacks or Ni powder, the binding agent may be carboxymethyl cellulose, PTFE, PVA, polythene, agar etc.

USE/ADVANTAGE - A battery of tablet structure which is quick and easy to mfr. is provided. The battery contents are formed into a tablet

beforehand and so may be produced independently on a large scale. The internal resistance is small and charging/discharging is good. (8pp
Dwg.No.1/9

Title Terms: BATTERY; THREE; LAYER; TABLET; STRUCTURE; EASY; MANUFACTURE;

LOW; RESISTANCE; CHARGE; DISCHARGE; PROPERTIES

Derwent Class: A85; L03; X16

International Patent Class (Additional): H01M-004/52 ; H01M-010/36

File Segment: CFI; EPI

Manual Codes (CPI/A-N): A12-E06; L03-E03

Manual Codes (EPI/S-X): X16-B01; X16-E01; X16-J

Plasdoc Codes (KS): 0210 0231 0239 0947 3198 3202 1989 2007 2551 2739

Polymer Fragment Codes (PF):

001 014 04- 041 046 047 062 064 087 231 240 244 245 252 259 506 509 526

564 60- 623 627 688

Derwent Registry Numbers: 1522-U; 1533-U; 1924-U; 1925-U; 1936-U

?

Set	Items	Description
S1	60427	ELECTRODE# OR MICROELECTRODE# OR ELECTROLYTE# OR ANOD?? ? - OR CATHOD?? ? OR KATHOD?? ? OR POSODE?? ? OR KATOD?? ? OR NEG- OD?? ?
S2	8247	CURRENT(2N)COLLECT???? ?
S3	407	{PLURALITY OR MANY OR MULTI OR SEVERAL OR TWO OR NUMBER OR NUMEROUS OR MULTIPLE OR MULTITUD? OR FLURIF? OR SECOND OR MOR- E) (1W)S2
S4	2	MULTILAYER?(1W)S2
S5	536	S2(3N)(SPACE? ? OR SPACING? OR INTERSPAC???? ? OR INTERSTI- C? OR SEPARAT???? ? OR SEP? ? OR CLEARANCE? OR INTERVAL? ?)
S6	616	S2(3N)(LAYER? ? OR STRATA? ? OR STRATUM? ? OR INTERLAY? OR INTERLAD?)
S7	970	S2(3N)(INSERT? OR INTERPOS? OR INSINUAT? OR BETWEEN OR SAN- DWICH? OR EMBED? OR BETWIXT OR INTRODUC? OR INTERVEN? OR INTE- RLARD? OR INTERJECT?)
S8	139493	ELECTRODE? ? OR MICROELECTRODE? ? OR ELECTROLYTE? ?
S9	226	S3:S4(S)S5:S8
S10	200	S9(S) (S1 OR S8)
S11	300425	POLYMER? ? OR HOMOPOLYMER? ? OR COPOLYMER? ? OR TERPOLYMER?
S12	48131	S11(6N)(HEAT? OR HOT? ? OR MELT??? ? OR WARM?? ? OR WARMING OR CALEFACT? OR TORREFACT? OR PYROL? OR PYROG? OR SINTER? OR THERMOL? OR THERMAL?)
S13	4679	S11(6N)(TEPEFACT? OR PREHEAT? OR FUSE? ? OR FUSING OR FUSI- ON)
S14	12641	S11(6N)(HIGH OR HIGHER OR RAIS? OR HEIGHTEN) (2N) (TEMP? ? OR TEMPERATURE? OR THERMAL?)
S15	114	S3:S4(S)S5:S7
S16	86	S15(S) (S1 OR S8)
S17	1	S16(S)S12:S14
S18	15	S16(S)S11
S19	1	S15(S)S12:S14
S20	4629	IC='H01M-004'
S21	4127	IC='H01M-010'
S22	9	S20:S21 AND S15(S)S11
S23	15	S17:S19 OR S22

?t23/5,k/all

23/5,K/1 (Item 1 from file: 348)

DIALOG(R)File 348:EUROPEAN PATENTS

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01394355

Secondary cell and method for preparation thereof

Sekundäre Zelle und Herstellungsverfahren

File secondaire et sa methode de fabrication

PATENT ASSIGNEE:

SONY CORPORATION, (214024), 7-35, Kitashinagawa 6-chome Shinagawa-ku,
 Tokyo, (JP), (Applicant designated States: all)

INVENTOR:

Endo, Takahiro, c/o Sony Corporation, 7-35, Kitashinagawa 6-chome,
 Shinagawa-ku, Tokyo, (JP)
 Kezuka, Koichiro, c/o Sony Corporation, 7-35, Kitashinagawa 6-chome,
 Shinagawa-ku, Tokyo, (JP)
 Hatazawa, Tsuyonobu, c/o Sony Corporation, 7-35, Kitashinagawa 6-chome,
 Shinagawa-ku, Tokyo, (JP)

LEGAL REPRESENTATIVE:

Muller . Hoffmann & Partner Patentanwalte (101521), Innere Wiener Strasse
 17, 81667 Munchen, (DE)

PATENT (CC, No, Kind, Date): EP 1180806 A2 020220 (Basic)

APPLICATION (CC, No, Date): EP 2001119841 010816;

PRIORITY (CC, No, Date): JP 2000248675 000818

DESIGNATED STATES: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI;
LU; MC; NL; PT; SE; TR
EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI
INTERNATIONAL PATENT CLASS: H01M-002/02; H01M-010/40 ; H01M-010/34

ABSTRACT EP 1180806 A2

A secondary cell exhibiting superior flexibility and cell characteristics. This secondary cell has an anode, a polymer electrolyte layer and an anode, layered together. At least one of the anode and the anode is formed by a sheet-like electrode comprised of a current collector, composed mainly of carbon fibers, and an electrode mixture carried thereon. A metal foil is provided in sliding contact with the sheet electrode on the opposite side of the sheet electrode with respect to the polymer electrolyte layer, and an electrode terminal is taken from said metal foil. The cell device is sealed under a reduced pressure by an exterior member.

ABSTRACT WORD COUNT: 106

NOTE:

Figure number on first page: 1

LEGAL STATUS (Type, Pub Date, Kind, Text):

Application: 020220 A2 Published application without search report
LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200208	455
SPEC A	(English)	200208	7234
Total word count - document A			7689
Total word count - document B			0
Total word count - documents A + B			7689

...INTERNATIONAL PATENT CLASS: H01M-010/40 ...

... H01M-010/34

...SPECIFICATION first current collector, a polymer electrolyte layer, and a second electrode, made up of a **second current collector**, carrying a **layer** of an active material thereon, with the metal foil being in sliding contact with the first **electrode**, to form a cell device, and sealing the cell device under a reduced pressure with...first current collector, a polymer electrolyte layer, and a second electrode, made up of a **second current collector**, carrying a **layer** of an active material thereon, with the metal foil being in sliding contact with the first **electrode**, to form a cell device, and sealing the cell device under a reduced pressure with...

...CLAIMS current collector, composed mainly of carbon fibers, and an electrode mixture, carried by the first **current collector**, a **polymer electrolyte layer**, and a second **electrode**, made up of a **second current collector**, carrying a **layer** of an active material thereon, with the metal foil being in sliding contact with the first **electrode**, to form a cell device; and sealing the cell device under a reduced pressure with...

23/5,K/2 (Item 1 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
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00909122 **Image available**
RETICULATED AND CONTROLLED POROSITY BATTERY STRUCTURES
STRUCTURES DE BATTERIE RETICULEES ET A POROSITE REGULEE
Patent Applicant/Assignee:

MASSACHUSETTS INSTITUTE OF TECHNOLOGY, 77 Massachusetts Avenue,
Cambridge, MA 02139, US, US (Residence), US (Nationality)
Inventor(s):
CHIANG Yet-Ming, 52 Lake Road, Framingham, MA 01701, US,
HELLNEG Benjamin, 57 Overhill Road, Orinda, CA 94563, US,

Legal Representative:

OVER Timothy J (agent), Wolf, Greenfield & Sacks, P.C., 600 Atlantic Avenue, Boston, MA 02210, US,

Patent and Priority Information (Country, Number, Date):

Patent: WO 200243168 A2 20020530 (WO 0243168)

Application: WO 2001US48345 20011022 (PCT/WO US0148345)

Priority Application: US 2000242124 20001020

Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU

CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP

KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PH PL PT RO RU

SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW

(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR

(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG

(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW

(EA) AM AZ BY KG KZ MD RU TJ TM

Main International Patent Class: H01M-004/00

Publication Language: English

Filing Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 9483

English Abstract

The effective ionic conductivity in a composite structure is believed to decrease rapidly with volume fraction. A system, such as a bipolar device or energy storage device, has structures or components in which the diffusion length or path that electrodes or ions must traverse is minimized and the interfacial area exposed to the ions or electrons is maximized. The device includes components that can be reticulated or has a reticulated interface so that an interface area can be increased. The increased interfacial perimeter increases the available sites for reaction of ionic species. Many different reticulation patterns can be used. The aspect ratio of the reticulated features can be varied. Such bipolar devices can be fabricated by a variety of methods or procedures. A bipolar device having structures of reticulated interface can be tailored for the purposes of controlling and optimizing charge and discharge kinetics. A bipolar device having graded porosity structures can have improved transport properties because the diffusion controlling reaction kinetics can be modified. Graded porosity electrodes can be linearly or nonlinearly graded. A bipolar device having perforated structures also provides improved transport properties by removing tortuosity and reducing diffusion distance.

French Abstract

On pense que la conductivité ionique effective d'une structure composite décroît rapidement avec une fraction de volume. L'invention concerne un système, tel qu'un dispositif bipolaire ou un dispositif de stockage d'énergie, comprenant des structures ou des composants dans lesquels la longueur ou le chemin de diffusion traverse par des électrodes ou des ions est minimisée, et la zone interfaciale exposée aux ions ou aux électrons est maximisée. L'invention concerne également un dispositif comprenant des composants qui peuvent être reticulés ou posséder une interface reticulée de telle sorte qu'il est possible d'augmenter une zone interfaciale. L'augmentation du périmètre interfacial permet d'augmenter les sites disponibles pour des réactions d'espèces ioniques. On peut utiliser différents modèles de reticulation. Le rapport d'aspect des caractéristiques reticulées peut varier. Les dispositifs bipolaires peuvent être fabriqués à l'aide d'une variété de procédés ou de procédures. Un dispositif bipolaire doté de structures interfaciales reticulées peut être personnalisé à des fins de régulation et d'optimisation de charge et de cinétique de décharge. Ce dispositif bipolaire doté de structures à porosité progressive peut présenter des propriétés de transport améliorées du fait que la cinétique de réaction régulant la diffusion peut être modifiée. Les électrodes à porosité progressive peuvent varier progressivement linéairement ou non linéairement. Un dispositif bipolaire à structures perforées peut également présenter des propriétés de transport améliorées par

suppression de la tortuosité et réduction de la distance de diffusion.

Legal Status (Type, Date, Text)

Publication 20020530 A2 Without international search report and to be republished upon receipt of that report.

Examination 20021017 Request for preliminary examination prior to end of 19th month from priority date

Main International Patent Class: H01M-004/00

Fulltext Availability:

Claims

Claim

... second electrode, a first current collector in electronic communication with the first electrode and a second current collector in electronic 1 5 communication with the second electrode, wherein the first electrode includes a portion, positioned between the first current collector and the second electrode, having a porosity that increases in a direction from the first current collector toward the second electrode.

23/5,K/3 (Item 2 from file: 349)

DIALOG(R) File 349:PCT FULLTEXT

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00806420

**MULTI-LAYER ELECTROCHEMICAL CELL DEVICES
DISPOSITIFS DE PILE ELECTROCHIMIQUE MULTICOUCHE**

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Patent and Priority Information (Country, Number, Date):

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Application: WO 2000US25511 20000915 (PCT/WO US0025511)

Priority Application: US 99447639 19991123

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(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE

Main International Patent Class: H01M-002/16

Publication Language: English

Filing Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 6012

English Abstract

A laminated multi-layer electrochemical cell device structure comprising positive and negative electrode layer members of polymeric matrix composition having a microporous polyolefin membrane separator member interposed therebetween wherein the separator membrane includes a polymer coating layer. The separator is further treated to provide a deposited coating of a primary plasticizer for the polymer coating layer. The device electrode and separator members are then assembled and laminated at a compressive force and temperature at which the plasticizer film softens the polymer coating of the separator member sufficiently to establish a strong interfacial bond with the matrix polymers of the electrode members and thereby form a laminated unitary cell structure. In another embodiment, the primary plasticizer comprises a component of the electrode polymeric matrix compositions. In either embodiment, the plasticizer subsequently volatilizes from the structure to further strengthen the interfacial bond, yet its temporary presence in the

interfacial region of the multi-layer cell structure enables lamination of the cell members at a temperature below the pore-collapse temperature of the separator membrane, thereby preserving the thermal shut-down protection feature of the microporous separator.

French Abstract

L'invention concerne une structure de dispositif de pile electrochimique multicouche stratifiee comprenant des elements de couches d'electrodes positive et negative constitues d'une composition matricielle polymere entre lesquels est interpose un element separateur a membrane en polyolefine microporeuse, la membrane du separateur comprenant une couche de revetement polymere. Le separateur est egalement traite pour produire un revetement depose d'un plastifiant primaire pour la couche de revetement polymere. Les elements d'electrodes et de separateur du dispositif sont ensuite assembles et stratifies sous une force de compression et une temperature auxquelles la couche mince de plastifiant assouplit le revetement polymere de l'element separateur suffisamment pour etablir une liaison interfaciale forte avec les polymeres matriciels des elements d'electrode et former ainsi une structure de pile unitaire stratifiee. Dans un autre mode de realisation, le plastifiant primaire comprend un constituant des compositions matricielles polymeres d'electrode. Dans l'un ou l'autre mode de realisation, le plastifiant s'evapore ensuite de la structure pour renforcer davantage la liaison interfaciale, cependant sa presence temporaire dans la region interfaciale de la structure de pile multicouche permet une stratification des elements de la pile a une temperature inferieure a la temperature d'ecrasement des pores de la membrane du separateur, preservant ainsi la fonction de protection d'arret thermique du separateur microporeux.

Legal Status (Type, Date, Text)

Publication 20010531 A1 With international search report.

Examination 20010823 Request for preliminary examination prior to end of 19th month from priority date

Fulltext Availability:

Claims

Claim

... conductive additive; and
a second current collector; and
a microporous separator interposed between said first **electrode**
structure and said second **electrode** structure, said separator having a
polymer
In
coating layer, said **polymer** coating layer being compatible with said
polymeric binder material of said first **electrode** structure and said
second
electrode structure;
wherein prior to and during bonding, a primary plasticizer of said
polymer coating layer of said separator is present at at least the
interfacial bonding surfaces between said first **electrode** structure
and said separator and between said second **electrode** structure and said
separator, said plasticizer facilitating bonding of said separator to
said first **electrode** structure and said second **electrode** structure.

2 A device according to claim 1, wherein, said device is a rechargeable lithium...

23/5,K/4 (Item 3 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
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00805678 **Image available**
METHODS OF PREPARING ELECTROCHEMICAL CELLS
PROCEDES DE PRODUCTION DE CELLULES ELECTROCHIMIQUES
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Legal Representative:
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Department, 9062 South Rita Road, Tucson, AZ 85747-9108, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200139301 A2-A3 20010531 (WO 0139301)
Application: WO 2000US32140 20001121 (PCT/WO US0032140)
Priority Application: US 99167149 19991123
Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ
DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ
LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG
SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
(QA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Main International Patent Class: H01M-002/16
International Patent Class: H01M-010/40
Publication Language: English
Filing Language: English
Fulltext Availability:
Detailed Description
Claims
Fulltext Word Count: 32338

English Abstract

Methods of preparing and anode/separator assembly for use in electrochemical cells in which a microporous separator layer, such as a microporous xerogel layer, is coated on a temporary carrier substrate, and an anode active layer, such as lithium metal, is then deposited on the separator layer, prior to removing the temporary carrier substrate from the separator layer. One or more protective coating layers may be coated before or after the coating step of the microporous separator layer and prior to depositing the anode active layer. Additional layers, including an edge insulating layer, an anode current collector layer, an electrode insulating layer, and a cathode current collector layer, may be applied subsequent to the coating step of the microporous separator layer. Also, methods of preparing electrochemical cells utilizing anode/separator assemblies prepared by such methods, and anode/separator assemblies and electrochemical cells prepared by such methods.

French Abstract

Cette invention a trait a des procedes de production d'un ensemble anode/separateur, utilisable dans des cellules electrochimiques dans lesquelles une couche de separation microporeuse, une couche microporeuse a base de xerogel notamment, recouvre un substrat de support provisoire, une couche active anodique, notamment au lithium, etant ensuite deposee sur la couche de separation avant que ne soit retire de cette couche de separation le substrat de support provisoire. Il est possible de deposer une ou plusieurs couches d'enduction avant ou apres l'operation d'enduction de la couche microporeuse de separation et avant la mise en place de la couche active anodique. Il est egalement possible, apres l'operation d'enduction de la couche microporeuse de separation, de deposer des couches supplementaires, notamment une couche marginale isolante, une couche collectrice de courant anodique, une couche isolante d'electrode et une couche collectrice de courant cathodique. L'invention, qui concerne egalement des procedes de production de cellules electrochimiques utilisant des ensembles anode/separateur fabriquees grace aux methodes susmentionnees, porte, en outre, sur des cellules electrochimiques produites grace a ces procedes.

Legal Status (Type, Date, Text)

Publication 20010531 A2 Without international search report and to be republished upon receipt of that report.

International Patent Class: H01M-010/40

Fulltext Availability:

Claims

Claim

... layer and said electrode insulating layer. 105. The method according to claim 103, wherein a **second anode current collector layer** is deposited in a third desired coating pattern on said second surface of said anode...

...said second surface of said edge insulating layer of said anode/separator assembly; wherein said **second anode current collector layer** has a first surface in contact with said second surface of said anode active layer...

...surface on the side opposite from said anode active layer; and wherein said first anode **current collector layer** and said second surface of said second anode **current collector layer** are positioned in a face-to-face relationship in step (a). 106. The method according to claim 105, wherein a **second anode current collector layer** is deposited in a third desired coating pattern on said second surface of said anode...

...said second surface of said edge insulating layer of said anode/separator assembly; wherein said **second anode current collector layer** has a first surface in contact with said second surface of said anode active layer...

...surface on the side opposite from said anode active layer; and wherein said first anode **current collector layer** and said second surface of said **second anode current collector layer** are positioned in a face-to-face relationship in step (a). 108. The method according to...

...positioned in a face-to-face relationship in step (a); and wherein a first anode **current collector layer**-electrode insulating layer-cathode-anode/separator assembly multilayer cell stack is formed in step (b), wherein said cathode...

...second surface of said separator layer. 109. The method according to claim 103, wherein a **second anode current collector layer** is deposited in a third desired coating pattern on said second surface of said anode...

...to completion of step (b). 111. The method according to claim 110, wherein a **second anode current collector layer** is deposited in a third desired coating pattern on said second surface of said anode...

...layer and has a second surface on the side opposite from said first protective coating layer; an anode **current collector layer** in a third desired coating pattern on said second surface of said anode active layer and on said second surface of said edge insulating layer, wherein said anode **current collector layer** has a first surface in contact with said second surface of said anode active layer...

...insulating layer in a fourth desired coating pattern on said second surface of said anode **current collector layer** and on said second surface of said edge insulating layer, wherein said electrode insulating layer has a first surface in contact with said anode **current collector layer** and has a second surface on the side opposite from said anode **current collector layer**; wherein said cathode and said second surface of said electrode insulating layer are positioned in...

...face-to-face relationship;

(b) winding said laminar combination to form a cathode-electrode insulating layer - anode current collector layer - anode / separator assembly multilayer cell stack, wherein said cathode is in contact with said second surface of said separator layer, (c) providing an electrolyte, wherein said electrolyte is contained in the pores of said separator layer of said multilayer cell stack;
(d...

...and,

(e) sealing said casing. 117. The method according to claim 11 6, wherein said anode /separator assembly of step I 0 (a) further comprises a temporary carrier substrate on said...

...completion of step (b). 118. The method according to claim 1 1 6, wherein said cathode and said second surface of said separator layer of said anode /separator assembly are positioned in a face-to-face relationship in step (a). 119. The method... 1 6 to 12 0, wherein said electrochemical cell is a primary cell. 123. An anode /separator assembly of an electrochemical cell prepared according to the method of claims 1, 18, 24, 26, 31, 33, 34, 37, and 39. 125. An anode /separator assembly of an electrochemical cell prepared according to the method of claims 2 to...

23/5,K/5 (Item 4 from file: 349)
DIALOG(R) File 349:PCT FULLTEXT
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00805673 **Image available**

METHOD OF MAKING MULTI-LAYER ELECTROCHEMICAL CELL DEVICES

PROCEDE DE PRODUCTION DE DISPOSITIFS DE PILE ELECTROCHIMIQUE MULTICOUCHE

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Patent and Priority Information (Country, Number, Date):

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Priority Application: US 99447640 19991123

Designated States: AU CA CN IL IN JP KR MX SG ZA

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International Patent Class: H01M-010/50

Publication Language: English

Filing Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 6838

English Abstract

A method of making a laminated multi-layer electrochemical cell device structure comprising positive and negative electrode layer members (12, 18) of a polymeric matrix composition, having a microporous polyolefin membrane separator member (16) therebetween, wherein the membrane includes a polymer coating layer. The separator is treated to provide a coating of a plasticizer for the polymer coating layer. The electrode and separator members are then assembled and laminated at a compressive force and temperature at which the plasticizer film softens the polymer coating of the separator member to sufficiently establish a strong interfacial bond with the matrix polymers of the electrode members, and thereby form a unitary cell structure. Alternatively, the plasticizer is a component of the electrode polymer matrix composition. In either embodiment, the plasticizer subsequently volatilizes from the structure to further

strengthen the interfacial bond.

French Abstract

L'invention concerne un procede de production d'une structure de dispositif de pile electrochimique multicouche stratifiee comprenant des elements de couches d'electrodes positive et negative (12, 18) d'une composition de matrice polymere, entre lesquels se trouve un element separateur (16) a membrane polyolefinique microporeuse, la membrane contenant une couche de revetement polymere. Le separateur est traite pour produire un revetement d'un plastifiant pour la couche de revetement polymere. Les elements d'electrodes et separateur sont ensuite assembles et stratifies sous une force de compression et une temperature auxquelles la couche mince de plastifiant assouplit le revetement polymere de l'element separateur pour etablir une liaison interfaciale forte suffisante avec les polymeres matriciels des elements d'electrode, et former ainsi une structure de pile unitaire. Dans un autre mode de realisation, le plastifiant est un constituant de la composition matricielle polymere d'electrode. Dans un autre mode de realisation, le plastifiant s'evapore ensuite a partir de la structure pour renforcer davantage la liaison interfaciale.

Legal Status (Type, Date, Text)

Publication 20010531 A1 With international search report.

Examination 20011018 Request for preliminary examination prior to end of 19th month from priority date

International Patent Class: H01M-010/50

Fulltext Availability:

Claims

Claim

... of makin a multi-layer electrochemical device comprising

9

the steps of:

providing a first **electrode** structure comprised of a first **electrode layer**

and a first **current collector** by the process of mixing together a polymeric binder material, **electrode** material, and an electronically conductive additive to make a first **electrode layer mixture**;

forming said first **electrode layer** from said first mixture;

providing said first **current collector**; and

forming said first **electrode structure** from said first **electrode layer** and said first **current collector**;

providing a second **electrode structure** comprised of a second **electrode layer** and a second **current collector** by the process of

mixing together a polymeric binder material, **electrode** material, and an electronically conductive additive to make a second **electrode layer mixture**;

forming said second **electrode layer** from said second mixture;

providing said second **current collector**; and

forming said second **electrode structure** from said second **electrode layer** and said second **current collector**;

providing a surface modified microporous separator having a **polymer coating layer**, said **polymer coating layer** being compatible with said polymeric binder material of said first **electrode layer** and said second **electrode layer**;

providing a plasticizer material which is a primary plasticizer of said **polymer coating layer** of said separator so that said plasticizer is available at at least the interfacial bonding surfaces between said first **electrode structure** and said separator and between second **electrode structure** and said separator; and

21

bonding said separator between said first **electrode structure** and said **second electrode structure**.

2 A method according to claim 1, wherein said step of providing a plasticizer...

00805671 **Image available**

METHODS OF PREPARING ELECTROCHEMICAL CELLS
PROCEDES DE PREPARATION DE CELLULES ELECTROCHIMIQUES

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Legal Representative:

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Patent and Priority Information (Country, Number, Date):

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Application: WO 2000US32231 20001121 (PCT/WO US0032231)

Priority Application: US 99167150 19991123

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DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KZ

LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG

SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR

(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG

(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW

(EA) AM AZ BY KG KZ MD RO TJ TM

Main International Patent Class: H01M-002/16

International Patent Class: H01M-010/40

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Filing Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 33096

English Abstract

Methods of preparing a cathode/separator assembly for use in electrochemical cells in which a protective coating layer, such as a single ion conducting layer, is coated on a temporary carrier substrate, a microporous separator layer is then coated on the protective coating layer, and a cathode active layer is then coated on the separator layer, prior to removing the temporary carrier substrate from the protective coating layer. Additional layers, including an edge insulating layer, a cathode current collector layer, an electrode insulating layer, an anode current collector layer, an anode layer such as a lithium metal layer, and an anode protective layer, such as a single ion conducting layer, may be applied subsequent to the coating step of the microporous separator layer. Also, methods of preparing electrochemical cells utilizing cathode/separator assemblies prepared by such methods, and cathode/separator assemblies and electrochemical cells prepared by such methods.

French Abstract

L'invention concerne des procedes de preparation d'un ensemble cathode/separateur s'utilisant dans des cellules electrochimiques, selon lesquels une couche de revetement protectrice, telle qu'une couche conductrice a ion unique, revetant un substrat support temporaire est elle-meme revetue d'une couche de separation microporeuse, une couche cathodique etant deposee sur la couche de separation avant l'elimination du substrat temporaire depuis la couche de revetement protectrice. On peut appliquer des couches supplementaires, telles qu'une couche d'isolation des bords, une couche collecteur cathodique de courant, une couche d'isolation d'electrode, une couche collecteur anodique de courant, une couche anodique telle qu'une couche metallique en lithium, et une couche de protection anodique, telle qu'une couche conductrice a

ion unique, a la suite de l'etape de revetement de la couche de separation microporeuse. L'invention concerne egalement des procedes de fabrication de cellules electrochimiques utilisant les ensembles cathode/separateur obtenus selon lesdits procedes, ainsi que des ensembles cathode/separateur et des cellules electrochimiques obtenus par ces procedes.

Legal Status (Type, Date, Text)

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Search Rpt : 20020117 Late publication of international search report

Republication : 20020117 A3 With international search report.

International Patent Class: H01M-010/40

Fulltext Availability:

Claims

Claim

... said electrode insulating layer, 106. The method according to claim 104 or 105, wherein a **second cathode current collector layer** is deposited in a third desired coating pattern on said second surface of said cathode...

...said second surface of said edge insulating layer of said cathode/separator assembly; wherein said **second cathode current collector layer** has a first surface in contact with said second surface of said cathode active layer...

...surface on the side opposite from said cathode active layer; and wherein said first cathode **current collector layer** and said second surface of said **second cathode current collector layer** are positioned in a face-to-face relationship in step (a). 107. The method according...

...positioned in a face-to-face relationship in step (a); and wherein a first cathode **current collector layer** -electrode insulating layer -anodecathode/separator assembly multilayer cell stack is formed in step (b), wherein said anode is...of said separator layer and has a second surface on the side opposite from said **separator layer**; a cathode **current collector layer** in a third desired coating pattern on said second surface of said cathode active layer and on said second surface of said edge insulating layer, wherein said cathode **current collector layer** has a first surface in contact with said second surface of said cathode active layer...

...insulating layer in a fourth desired coating pattern on said second surface of said cathode **current collector layer** and on said second surface of said edge insulating layer, wherein said electrode insulating layer has a first surface in contact with said cathode **current collector layer** and has a second surface on the side opposite from said cathode **current collector layer**; wherein said anode and said second surface of said electrode insulating layer are positioned in...

...face-to-face relationship;

(b) winding said laminar combination to form an anode-electrode insulating layer - cathode **current collector layer** - cathode / separator assembly multilayer cell stack, wherein said anode is in contact with said first surface of said first protective coating layer;

(c) providing an **electrolyte**, wherein said **electrolyte** is contained in the pores of

said separator layer of said multilayer cell stack;

(d...

...and,

(e) sealing said casing. 114. The method according to claim II 3, wherein

said **cathode** /separator assembly of step (a) further comprises a temporary carrier substrate on said first surface...

...to completion of step (b). 115. The method according to claim 113, wherein said **anode** and said first surface of said first protective coating layer of said **cathode** /separator assembly are positioned in a face-to-face relationship in step (a). 116. The...

...3 to 117, wherein said electrochemical cell is a primary cell. 120. A **cathode** /separator assembly of an electrochemical cell prepared according to the method of claims 1 to...

23/5,K/7 (Item 6 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
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007B2046 **Image available**

IMPROVEMENTS TO CIRCUIT PROTECTION DEVICES
AMELIORATIONS DE DISPOSITIFS DE PROTECTION DE CIRCUITS

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Patent and Priority Information (Country, Number, Date):

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Main International Patent Class: H01C-007/02

International Patent Class: H01C-001/14

Publication Language: English

Filing Language: English

Fulltext Availability:

Detailed Description
Claims

Fulltext Word Count: 7667

English Abstract

A generally rectangular, planar electrical overcurrent sensing device (100) having a top major surface and a bottom major surface includes a patterned metal foil conductor (10) defined along the top major surface. The metal foil conductor has a first electrode region (12) at one end region, a second electrode region (14) at an opposite end region, and a current-concentrating region (16) extending between the first electrode portion and the second electrode portion. The device further includes a planar sheet of a composition (20) which exhibits PTC behaviour and which preferably comprises an organic polymer having a particulate conductive filler dispersed therewithin, the planar sheet having a first major surface in thermal contact with the bridging portion and having an opposite second major surface. A third patterned metal foil electrode (30) secured to the second major surface of the planar PTC sheet is sized and aligned with the current-concentrating region such that heat generated in the current-concentrating region from electrical overcurrent flowing through the metal foil conductor is transferred to the planar sheet exhibiting PTC behavior and results in a control current flow to said third patterned metal foil electrode. An insulation layer (40) may be imposed between the patterned metal foil conductor and the PTC sheet layer, and in such case the third patterned metal foil electrode is divided into two conductive areas separated by a gap aligned with the

current-concentrating region, thereby providing a four terminal device. Tin pellets may be included in the current-concentrating region to reduce a melting/fracture temperature thereof below a flaming temperature of the organic polymer sheet forming the PTC layer.

French Abstract

L'invention concerne un detecteur de surintensites electriques (100) rectangulaire plat, presentant une grande face superieure et une grande face inferieure, la grande surface superieure etant pourvue d'une feuille metallique conductrice imprimee (10). Cette feuille metallique conductrice comprend une premiere zone electrodé (12) a une extremité, une deuxieme zone electrodé (14) a l'extremite opposee, et une zone de concentration de courant (16) entre la premiere et la deuxieme zone electrodé. Le dispositif comprend egalement une feuille plane d'une composition (20) qui revele un comportement PTC et qui comprend de preference un polymere organique comportant en dispersion un agent de remplissage particulaire, la feuille plane definissant, d'une part une premiere grande face en contact thermique avec une partie en pont, et d'autre part une deuxieme grande face. Une feuille metallique imprimee (30) formant la troisieme electrodé est fixee a la deuxieme grande face de la feuille plane PTC. De par ses dimensions et son alignement par rapport a la zone de concentration de courant, elle permet de transferer, a la feuille plane a comportement PTC, la chaleur se degageant de la zone de concentration de courant par suite de surintensite dans la feuille metallique conductrice. Il en resulte un courant de commande arrivant feuille metallique imprimee formant la troisieme electrodé. Une couche isolante (40) peut etre placee entre la feuille metallique conductrice imprimee et la feuille PTC, et dans ce cas la feuille metallique imprimee formant la troisieme electrodé est divisee en deux zones conductrices separees par un espace dans l'alignement de la zone de concentration de courant, ce qui permet la constitution d'un dispositif a quatre bornes. Des pastilles d'etain peuvent etre ajoutees dans la zone de concentration de courant afin de faire descendre la temperature de fusion/fracture en dessous de la temperature a partir de laquelle prend feu la feuille en polymere organique de la couche PTC.

Legal Status (Type, Date, Text)

Publication 20010301 A2 Without international search report and to be republished upon receipt of that report.
Examination 20010726 Request for preliminary examination prior to end of 19th month from priority date
Search Rpt 20011206 Late publication of international search report
Republication 20011206 A3 With international search report.

Fulltext Availability:

Detailed Description

Detailed Description

... electrical insulation layer 40 is interposed between the plane of the conductor 10 and control electrodes 18 and 19, and the PTC layer 20. The insulation layer 40 is most preferably formed of a high-temperature-resistant polymer film, such as PVDF or one of the high-temperature-resistant derivatives of nylon (synthetic long-chain polymeric amides having recurring amide groups). The layer...

...to withstand voltage spikes associated with transients in the operating environment. In automotive applications, the polymer film layer may preferably be on the order of at least approximately 0.001...
...voltage spikes on the order of 100 volts peak. In contrast to the single current-collecting control layer 32 shown in the Figure 1 device 100, the device 200 of Figure 2 has two current-collecting control segments 32 and 33 which are separated by a narrow gap 34 most preferably...

...segments 32 and 33. At least one via 22 connects the segment 32 to the electrode 18, and at least one via 23 connects the segment 33 to the electrode 19.

Figure 4 depicts a protection circuit 400 incorporating a device 200 of

23/5,K/8 (Item 7 from file: 349)
DIALOG(R) File 349:PCT FULLTEXT
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00739399 **Image available**

**PORTABLE POWER SUPPLY
DISPOSITIF PORTATIF D'ALIMENTATION EN ENERGIE**

Patent Applicant/Assignee:

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Patent and Priority Information (Country, Number, Date):

Patent: WO 200052779 A1 20000908 (WO 0052779)

Application: WO 2000US5148 20000229 (PCT/WO US0005148)

Priority Application: US 99260097 19990301

Designated States: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES

FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU

LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA

UG UZ VN YU ZA ZW

(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE

(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG

(AP) GH GM KE LS MW SD SL SZ TZ UG ZW

(EA) AM AZ BY KG KZ MD RU TJ TM

Main International Patent Class: H01M-008/10

Publication Language: English

Filing Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 4381

English Abstract

The invention provides a device for generating energy, utilizing a fuel cell. Air is freely guided to the fuel cell, while a fuel gas is provided to the fuel cell from a pressurized fuel supply via a regulator. The portable power supply (100) is most applicable to use with handheld electric devices, and contains a fuel storage means (110) for storing a supply of fuel, a fuel delivery means (120) connected to the fuel storage means (110), an energy conversion device (140) connected to the fuel delivery means (120) for converting the fuel to electricity. The fuel storage means (110), the fuel delivery means (120), and the energy conversion device (140) are all contained in a volume less than 500 cubic centimeters.

French Abstract

L'invention concerne un dispositif de production d'énergie au moyen d'une pile a combustible. De l'air est admis librement dans la pile a combustible, tandis qu'un gaz combustible est fourni a cette pile, a partir d'une alimentation en combustible sous pression, via un regulateur. Ce dispositif portatif d'alimentation en energie (100) est surtout destine a une utilisation avec des dispositifs electriques portatifs, et contient des moyens de stockage (110) de combustible, destines a stocker une source de combustible, des moyens d'apport (120) de combustible, relies aux moyens de stockage (110), un dispositif de

conversion d'energie (140), relie aux moyens d'apport (120) de combustible, et destines a convertir le combustible en electricite. Les moyens de stockage (110), les moyens d'apport (120) et le dispositif de conversion d'energie (140) sont tous contenus dans un volume inferieur a 500 centimetres cubes.

Legal Status (Type, Date, Text)

Publication 20000908 A1 With international search report.

Examination 20001109 Request for preliminary examination prior to end of 19th month from priority date

Fulltext Availability:

Detailed Description

Detailed Description

... stacked fuel cells..

I 0 A planar fuel cell is created by sandwiching a membrane electrode assembly (MEA) between two current collector assemblies. The MEA is a single sheet of a polymer electrolyte membrane (PEM) with an array of cathodes 142 on one side and an array of corresponding anodes 144 on the other side.

Current collectors are supported by a plastic frame 1...

23/5,K/9 (Item 8 from file: 349)

DIALOG(R)File 349:PCT FULLTEXT

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00563607 **Image available**

PLANAR FUEL CELL

FILE A COMBUSTIBLE PLANE

Patent Applicant/Assignee:

MOTOROLA INC,

Inventor(s):

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KELLEY Ronald J,

MUTHUSWAMY Sivakumar,

LANDRETH Bobby Dean,

PENNISI Robert W,

Patent and Priority Information (Country, Number, Date):

Patent: WO 200026980 A1 20000511 (WO 0026980)

Application: WO 990323893 19991014 (PCT/WO US9923893)

Priority Application: US 98183459 19981030

Designated States: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES

FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU

LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA

UG UZ VN YU ZW GH GM KE LS MW SD SL SZ TZ UG ZW AM AZ BY KG KZ MD RU TJ

TM AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI

CM GA GN GW ML MR NE SN TD TG

Main International Patent Class: H01M-008/02

Publication Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 3713

English Abstract

A planar fuel cell (20) is provided, including a membrane electrode assembly (23) sandwiched between two current collector assemblies (21, 22). The membrane electrode assembly is a single sheet of a polymer electrolyte membrane with an array of anodes (27) on one side and an array of corresponding cathodes (28) on the other side. The current collectors (25) can be supported by a plastic frame (24), and they have an interconnect tab (26) that provides an electrical pathway to the exterior of the membrane electrode assembly. The interconnect tab is situated to provide electron transfer between the anodes and the

cathodes such that the interconnect tab does not traverse the thickness of the **polymer electrolyte** membrane. When the planar fuel cell is assembled, the interconnect tab is sealed to prevent leaking of fuel or oxidant gases. Fuel is distributed (36) to only one side of the membrane **electrode** assembly and oxidant is distributed (36) only to the other side.

French Abstract

Pile (20) a combustible plane, qui comporte un ensemble electrode (23) sous forme de membrane placee en sandwich entre deux ensembles (21, 22) collecteurs de courant. L'ensemble electrode sous forme de membrane est constitue d'une seule feuille d'une membrane electrolytique polymere dotee d'un groupe d'anodes (27) d'un cote et d'un groupe de cathodes (28) correspondantes de l'autre cote. Les collecteurs de courant (25) peuvent etre supportes par un cadre en plastique (24) et ils possedent une languette d'interconnexion (26) qui fournit une trajectoire electrique vers l'exterieur de l'ensemble electrode sous forme de membrane. La languette d'interconnexion, destinee a fournir un transfert d'electrons entre anodes et cathodes, est disposee de maniere telle qu'elle ne traverse pas la membrane electrolytique polymere dans son epaisseur. Lorsque la pile a combustible plane est assemblee, la languette d'interconnexion est etancheifiee pour empecher la fuite de combustible ou de gaz oxydants. Le combustible est reparti (36) sur une face seulement de l'ensemble electrode sous forme de membrane et l'oxydant est reparti (36) uniquement sur l'autre face.

Fulltext Availability:

Detailed Description
Claims

English Abstract

A planar fuel cell (20) is provided, including a membrane **electrode** assembly (23) sandwiched between two current collector assemblies (21, 22). The membrane **electrode** assembly is a single sheet of a **polymer electrolyte** membrane with an array of anodes (27) on one side and an array of corresponding cathodes (28) on the other side. The current collectors (25) can be supported by a plastic...

...an interconnect tab (26) that provides an electrical pathway to the exterior of the membrane **electrode** assembly. The interconnect tab is situated to provide electron transfer between the anodes and the cathodes such that the interconnect tab does not traverse the thickness of the **polymer electrolyte** membrane. When the planar fuel cell is assembled, the interconnect tab is sealed to prevent...

...fuel or oxidant gases. Fuel is distributed (36) to only one side of the membrane **electrode** assembly and oxidant is distributed (36) only to the other side.

Detailed Description

... is created by sandwiching a membrane electrode assembly between two current collector assemblies. The membrane **electrode** assembly (MEA) is a single sheet of a **polymer electrolyte** membrane with an array of anodes on one side and an array of corresponding cathodes on the other side. The current collectors may be supported by a plastic frame, and...

...perimeter of the MEA. The interconnect tab is situated to provide electron transfer between the anodes and the cathodes such that the interconnect tab does not traverse the thickness of the **polymer electrolyte** membrane. When the planar fuel cell is assembled, the interconnect tab is ...of fuel or oxidant gases. Fuel is distributed to only one side of the membrane **electrode** assembly and oxidant is distributed only to the other side.

In our preferred embodiment, the...

Claim

... interconnect tab
embedded into the thermoplastic frame to provide a gas
tight seal;
a membrane **electrode** assembly, comprising a single
sheet of a **polymer electrolyte** membrane having an array of
anodes disposed on a first major side and an array of
corresponding **cathodes** disposed on a second opposing major
side, all **anodes** being on the first major side of the
sheet and all **cathodes** being on the second major side;
the membrane **electrode** assembly disposed between the
first and second planar **current collector** assemblies such
that said array of **anodes** is adjacent to the array of
current collectors in the first current collector assembly
and said array of **cathodes** is adjacent to the array of
current collectors in the second **current collector**
assembly;
the first and second planar **current collector**
assemblies bonded to each other at their perimeters such
that a gas tight seal is formed about the membrane
electrode assembly; and
the interconnect tabs from the first and second
planar **current collector** assemblies arranged to provide an
electron transfer path from an **anode** to a neighboring
cathode such that the electron transfer path does not
traverse the thickness of the **polymer electrolyte**
3 0 membrane.

5 A planar fuel cell, comprising:
first and second current collector assemblies...

23/5,K/10 (Item 9 from file: 349)
DIALOG(R)File 349: PCT FULLTEXT
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00556179 **Image available**
COMPOSITE ELECTRODE INCLUDING PTC POLYMER
ELECTRODE COMPOSITE COMPRENANT UN POLYMERES PTC
Patent Applicant/Assignee:
DASGUPTA Sankar,
JACOBS James K,
Inventor(s):
DASGUPTA Sankar,
JACOBS James K,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200019552 A1 20000406 (WO 0019552)
Application: WO 99CA863 19990921 (PCT/WO CA9900863)
Priority Application: US 98161664 19980929
Designated States: AU BR CA CN IN JP KR SG AT BE CH CY DE DK ES FI FR GB GR
IE IT LU MC NL PT SE
Main International Patent Class: H01M-004/02
International Patent Class: H01C-007/02; H01M-010/40
Publication Language: English
Fulltext Availability:
Detailed Description
Claims
Fulltext Word Count: 5504

English Abstract

A composite electrode (18) for a rechargeable lithium battery is described. The composite electrode has a metallic current collector (12) in contact with an electrically conducting organic polymer laminate (14) made of a blended and annealed polymeric mixture containing fine carbon particles, and coated with an electrode-active substance bearing layer (16). The conducting polymer is capable of reversible resistivity changes of several orders of magnitude in only a portion of the laminate, thereby

reducing locally excessive current flow and over-heating in the rechargeable lithium battery.

French Abstract

L'invention porte sur une electrode (18) composite destinee a une batterie au lithium rechargeable. Cette electrode composite comporte un collecteur (12) de courant metallique en contact avec un lamelle (14) polymere organique electroconducteur constitue d'un melange polymere brasse et recuit contenant de fines particules de carbone et recouvert d'une couche (16) support d'une substance active de l'electrode. Le polymere conducteur est capable de transformations reversibles de la resistivite de plusieurs ordres de grandeur dans une partie uniquement du lamelle, ce qui reduit l'ecoulement de courant excessif local et cree une surchauffe dans la batterie au lithium rechargeable.

Main International Patent Class: H01M-004/02

...International Patent Class: H01M-010/40

Fulltext Availability:

Detailed Description

Detailed Description

... present in the electrolyte, There are known methods for applying such adhesive layers.

A composite electrode, and a lithium battery having electrodes of opposite polarity both in the form of composite electrode made in accordance with this invention, are schematically represented on Fig.1a and Fig.1b, Fig.1a shows a composite electrode 10, assembled according to this SUBSTITUTE SHEET (RULE 26) invention, where 12 is the metallic current collector, 14 is the electrically conductive organic polymer laminate, and 16 is the electrode -active substance containing layer, Reference numeral 18 represents the assembled composite electrode, which may optionally, carry a lithium ion bearing adhesive layer 22, Fig e 1b represents schematically a lithium electrochemical cell 20, made of two composite electrodes of opposite polarity, and having electrolyte layer 26 between the composite anode 18, and composite cathode 24. In Fig.1b 12 and 121 are metallic current collector sheets, 14 and 141 are the electrically conductive organic polymer layers, which may be of the same composition or may be different, and 16 and 17 represent layers containing electrode -active components of opposite polarity. Lithium ion containing adhesive layers (not shown) is may be inserted between each composite electrode and the appropriate face of the non-aqueous electrolyte, EXAMPLE 1

An electrically conductive composition was prepared of a blended polymer mixture of low density polyethylene and ethylene vinyl acetate in a ratio of 5:1...

...known manner, then extruded and annealed at 180°C for 18 hours, and the annealed polymer was laminated over a copper foil to yield current collector sheets of 27 µm thickness...

...was found to be WC, about which the resistivity changed 2 orders of magnitude, The two - layer current collector was cut to rectangles of 62mm x 480mm, and one face of a rectangle was coated in 0.2 mm thickness with a graphite containing anode mixture, The anode mixture was composed of graphite powder marketed as "Lonza SFG-1511, and polyvinylidene fluoride binder...

...marketed under the name of "Celgard", and cut to the same size as the composite anode made of copper foil, electrically conducting SUBSTITUTE SHEET (RULE 26) polyethylene-ethylene vinyl acetate-carbon laminate and

graphite layer, and was placed over the free face of the anode layer. The other side of the porous polypropylene separator was coated with a cathode mixture in 0.2 mm thickness, by the doctor's blade method. The cathode mixture contained lithium cobalt oxide particles to which 3 wt.% polyvinylidene fluoride and 4 wt.% fine carbon had been added. The free face of the cathode layer was subsequently brought in contact with another rectangle of a two-layered current collector, which was made up of electrically conducting polyethylene-ethylene vinyl acetate-carbon polymer laminate and aluminum foil, having the aluminum foil on the external face. The assembled rechargeable...

...plastic coated metallic cylinder of 65mm length and 18mm diameter,, and subsequently filled with an electrolyte solution under vacuum and sealed. The electrolyte solution comprised ethylene carbonate-dimethyl carbonate in a ratio of 1:1 as solvent and...

...C showing a resistivity change around this temperature of about 3 orders of magnitude. The two @ layer current collector was cut to rectangles of 10 cm x 12 cm,, and one face of a rectangle was coated in 0.2 mm thickness with a graphite containing anode mixture. The anode mixture was composed of graphite powder marketed as "Lonza SFG-1511, and polyvinylidene fluoride binder...

23/5,K/11 (Item 10 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
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00476946 **Image available**
NONAQUEOUS ELECTRICAL STORAGE DEVICE
DISPOSITIF DE STOCKAGE ELECTRIQUE NON AQUEUX
Patent Applicant/Assignee:
COVALENT ASSOCIATES INC,
Inventor(s):
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EVANS David A,
BLAKLEY Thomas J,
GOLDMAN Jay L,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9908298 A1 19990218
Application: WO 98US16626 19980810 (PCT/WO US9816626)
Priority Application: US 97910146 19970812

Designated States: JP AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE

Main International Patent Class: H01G-009/00

International Patent Class: H01G-009/04

Publication Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 7630

English Abstract

An electrochemical capacitor is disclosed that features two, separated, high surface area carbon cloth electrodes (16, 18) sandwiched between two current collectors (12, 14) fabricated of a conductive polymer having a flow temperature greater than 130 degrees Celsius, with the perimeter of the electrochemical being sealed with a high temperature gasket (20) to form a single cell device. The gasket material is a thermoplastic stable at temperature greater than 100 degrees Celsius, preferably a polyester or a polyurethane, and having a reflow temperature above 130 degrees Celsius but below the softening temperature of the current collector material. The capacitor packaging has good mechanical integrity over a wide temperature range, contributes little to the device equivalent series resistance, and is designed to be easily

manufactured by assembly line methods. The individual cells can be stacked in parallel or series configuration to reach the desired device voltage and capacitance.

French Abstract

L'invention concerne un condensateur electrochimique presentant deux electrodes (16, 18) en fibre de carbone, de grande surface, separees, se trouvant entre deux collecteurs (12, 14) de courant fabriques en un polymere conducteur ayant une temperature de fluidite superieure a 130 degresC, le pourtour du dispositif electrochimique etant scelle avec un joint d'etancheite (20) pour temperatures elevees afin de former une seule cellule. Le joint d'etancheite est en matiere thermoplastique stable a une temperature superieure a 100 degresC, de preference un polyester ou un polyurethane, dont la temperature de refusion est superieure a 130 degresC, mais inferieure a la temperature de ramollissement du materiau du collecteur de courant. Le boitier du condensateur presente une bonne integrite mecanique sur une large gamme de temperatures, contribue peu a la resistance serie equivalente du dispositif et est concu pour etre facile a fabriquer sur des chaines de montage. Les cellules individuelles peuvent etre montees en parallele ou en serie afin d'atteindre la tension et la capacite du dispositif voulues.

Fulltext Availability: Detailed Description

English Abstract

An electrochemical capacitor is disclosed that features two, separated, high surface area carbon cloth **electrodes** (16, 18) **sandwiched between two current collectors** (12, 14) fabricated of a conductive **polymer** having a flow temperature greater than 130 degrees Celsius, with the perimeter of the electrochemical...

Detailed Description

... electrochemical capacitor of the invention includes two separated high surface area, e.g., carbon, electrodes **sandwiched between two current collectors** fabricated of a conductive **polymer** having a flow temperature greater than 130°C or a corrosion resistant steel. The perimeter of...

23/5,K/12 (Item 11 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
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00390657 **Image available**
METHOD AND APPARATUS FOR PREPARING ELECTROCHEMICAL CELLS
PROCEDE ET DISPOSITIF DE REALISATION DE CELLULES ELECTROCHIMIQUES

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HOLMES Douglas B,
GOGOLIN E Lawrence,

Inventor(s):

VELASQUEZ David A,
HOLMES Douglas B,
GOGOLIN E Lawrence,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9731400 A1 19970828
Application: WO 97US2305 19970220 (PCT/WO US9702305)
Priority Application: US 96603894 19960222; US 96630983 19960412; US 96630985 19960412

Designated States: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES

FI GB GE HU IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW
MX NO NZ PL PT RO RU SD SE SG SI SK TJ TM TR TT UA UG US UZ VN KE LS MW
SD SZ UG AM AZ BY KG KZ MD RU TJ TM AT BE CH DE DK ES FI FR GB GR IE IT
LU MC NL PT SE BE BJ CF CG CI CM GA GN ML MR NE SN TD TG

Main International Patent Class: H01M-01/04
International Patent Class: H01M-06/46
Publication Language: English
Fulltext Availability:
Detailed Description
Claims
Fulltext Word Count: 12955

English Abstract

A method of fabricating electrochemical cells and batteries wherein the successive anode and cathode layers are separated by a polymeric electrolyte layer having a protruding polymer edge around its perimeter which reduces the likelihood of inadvertent contact between the anode and cathode current collectors is provided. The polymer edge functions as a non-conducting physical barrier positioned between adjacent current collectors. An apparatus for preparing electrochemical cells is also disclosed.

French Abstract

La presente invention concerne un procede de fabrication de cellules et de piles electrochimiques dans lesquelles les couches successives d'anode et de cathode sont separees par une couche d'electrolyte polymere presentant sur son pourtour un rebord polymere protuberant qui reduit la probabilite de contact accidentel entre les collecteurs de courant de l'anode et de la cathode. Le rebord polymere fonctionne comme une barriere physique non conductrice disposee entre des collecteurs de courant adjacents. L'invention concerne egalement un dispositif de realisation de cellules electrochimiques.

Main International Patent Class: H01M-01/04
Fulltext Availability:
Claims

Claim

- ... The apparatus as set forth in claim 21, further comprising a third laminating station, a **second cathode current collector** being laminated to at least one second cathode material film on at least one side of the **second cathode current collector** to form a second cathode precursor at the second laminating station, the second cathode precursor...
- ... same as the first cathode precursor, and the second cathode material film including the second **polymer**, the cathode active material, and the second plasticizer, wherein, at the assembling station, a second...
- ... anode precursor and the second cathode precursor such that the polymeric layer prevents direct contact **between the anode current collector and the second cathode current collector**, and, at the fusion station, the polymeric layer is fused to the anode precursor and... between the anode precursor and a second cathode precursor, the second cathode precursor including a **second cathode current collector** laminated to at least one second cathode material film on at least one side of the **second cathode current collector**, the second cathode precursor being substantially the same as the first cathode precursor, and the second cathode material film including the second **polymer**, the cathode active material, and the second plasticizer, such that the polymeric layer prevents direct contact **between the anode current collector and the second cathode current collector**, and, at the fusion station, the polymeric layer is fused to the **anode precursor and the second cathode precursor** to form the bicell battery.
- 33 The apparatus as set forth in claim 32... third laminating station, the second cathode material film is laminated to both sides of the **second cathode current collector**. ~ 41
- . An apparatus for activating an electrochemical cell, the electrochemical cell including one or more...

...least one side of the anode current collector, the anode material film including a first **polymer**, an intercalation carbon material, and a first plasticizer, a cathode precursor, the cathode precursor including ...

...least one side of the cathode current collector, the cathode material film including a second **polymer**, a cathode active material, and a second plasticizer, and a polymeric layer including a third...

...the cathode precursor at the assembling station such that the polymeric layer prevents direct contact between the **anode current collector** and the **cathode current collector**, the polymeric layer being fused between the **anode precursor** and the **cathode precursor**, the first, second, and third plasticizers having been extracted from the **anode precursor**, the **cathode precursor**, and the polymeric layer to form pores therein, comprising: a first filling station, a first amount of an **electrolyte solution** including an **electrolyte solvent** and an inorganic salt being filled into the receptacle such that the **electrolyte solution** is absorbed into pores in the **anode precursor**, the **cathode precursor**, and the polymeric layer at the first filling station; one or more subsequent filling stations disposed downstream from the first filling station, subsequent amounts of the **electrolyte solution** being filled into the receptacle at the subsequent filling stations such that the **electrolyte solution** is absorbed into pores in the **anode precursor**, the **cathode precursor**, and the polymeric layer at the subsequent filling stations, the subsequent amounts of the **electrolyte solution** added at each subsequent filling station being no more than - 42 equal to the...

23/5,K/13 (Item 12 from file: 349)
 DIALOG(R)File 349:PCT FULLTEXT
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00368442 **Image available**
 CURRENT COLLECTOR HAVING ELECTRODE MATERIAL ON TWO SIDES FOR USE IN A LAMINATE BATTERY AND METHOD OF MAKING A BATTERY
 COLLECTEUR DE COURANT A MATERIAU D'ELECTRODE DISPOSE SUR DEUX COTES, DESTINE A UNE BATTERIE STRATIFIEE ET PROCEDE DE FABRICATION DE CETTE BATTERIE

Patent Applicant/Assignee:
 VALENCE TECHNOLOGY INC,

Inventor(s):
 CHEU S Scot,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9708769 A1 19970306

Application: WO 96US13131 19960813 (PCT/WO US9613131)

Priority Application: US 95519473 19950825

Designated States: AL AM AT AU AZ BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE HU IL IS JP KE KG KP KR KZ LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK TJ TM TR TT UA UG UZ VN KE LS MW SD SZ UG AM AZ BY KG KZ MD RU TJ TM AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI CM GA GN ML MR NE SN TD TG

Main International Patent Class: H01M-01/04

International Patent Class: H01M-06:46

Publication Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 4643

English Abstract

In a laminate battery cell, a sheet-like current collector is provided with electrode material in electrical contact with two sides of the

current collector. Solid electrolyte material contacts the electrode material and separates the electrode material from an electrode material with a different electromotive potential. An extended portion of the current collector is provided to facilitate forming electrical connections with the current collector and the electrode material and to facilitate cooling of the battery cell.

French Abstract

Dans un element de batterie stratifiee, un collecteur de courant de type a feuille presente un materiau d'electrode en contact electrique avec ses deux cotes. Un materiau d'electrolyte solide, en contact avec le materiau d'electrode, separe ce dernier d'un autre materiau d'electrode a potentiel electromoteur different. Le collecteur de courant comprend une partie en prolongement destinee a faciliter l'etablissement de ses connexions electriques avec le materiau d'electrode et le refroidissement de l'element de batterie.

Main International Patent Class: H01M-01/04

Fulltext Availability:

Detailed Description

Detailed Description

... cathode laminate 21 in that an electrical connection can be made directly with the cathode **current collector layer**.

The cathode **current collector layer** 23 is sheet-like and is preferably formed from a continuous current conducting web material, such as a nickel web or sheet. The **cathode layer** 25 is coated or covered onto the **cathode current collector layer** 23 and is selected from the group of materials suited for storing ions released from an **anode**. The **cathode layer** 25 is preferably a composite material including a vanadium oxide, V6013 or V308, material. The **electrolyte layer** 27 is a **polymer electrolyte** material that is coated or covered onto the **cathode layer** 25. The **cathode layer** 25 and the **electrolyte layer** 27 can be cured in an electron beam curing apparatus (not shown). U.S. ...

... No. 4,925,751 to Shackle et al. describes certain materials useful in forming the **cathode layer** 25, the **electrolyte layer** 27, and the **anode laminate** 41, and is incorporated by reference to the extent that it describes such materials...

23/5,K/14 (Item 13 from file: 349)

DIALOG(R) File 349:PCT FULLTEXT

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00366242 **Image available**

LOW RESISTANCE RECHARGEABLE LITHIUM-ION BATTERY

BATTERIE A IONS LITHIUM, RECHARGEABLE ET DE BASSE RESISTANCE

Patent Applicant/Assignee:

BELL COMMUNICATIONS RESEARCH INC,

Inventor(s):

GOZDZ Antoni Stanislaw,
SCHMUTZ Caroline Nichole,
TARASCON Jean-Marie,
WARREN Paul Clifford,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9706569 A1 19970220

Application: WO 96US11732 19960715 (PCT/WO US9611732)

Priority Application: US 95510835 19950803

Designated States: AU CA JP KR MX SG VN AT BE CH DE DK ES FI FR GB GR IE IT

LU MC NL PT SE

Main International Patent Class: H01M-004/64

International Patent Class: H01M-10:36

Publication Language: English

Fulltext Availability:
Detailed Description
Claims
Fulltext Word Count: 4372

English Abstract

A perforate current collector element (21) embedded within at least one of its polymeric intercalation electrodes (23) reduces the internal resistance of a flexible rechargeable lithium-ion battery (20).

French Abstract

Un element (21) perfore, collecteur de courant, loge dans au moins une de ses electrodes polymeres (23) d'intercalation reduit la resistance interne d'une batterie (20) rechargeable et flexible a ions lithium.

Main International Patent Class: H01M-004/64

Fulltext Availability:
Claims

Claim

... opposite polarity.

8 A rechargeable lithium-ion battery structure comprising:

- a) a plurality of positive **electrode** elements made of a flexible **polymer** composition containing a lithiated intercalation compound;
- b) a negative **electrode** element made of a flexible polymeric matrix composition containing carbon as a material capable of lithium intercalation, wherein said negative **electrode** element is positioned between each of said positive **electrodes** ;
- c) a plurality of separator elements composed of a flexible polymeric film composition capable of...

...at

least one of said separator elements being disposed on either side of said negative **electrode** , thereby separating the negative **electrode** from the positive **electrodes** ;
d) a plurality of current collectors , wherein a current collector is embedded within each of said positive **electrodes** and said negative **electrode** ; and
e) wherein each of said elements is bonded to contiguous elements to form a...

23/5,K/15 (Item 14 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
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00363150 **Image available**

A WOUND ELECTROCHEMICAL CELL, A METHOD FOR THE MANUFACTURE THEREOF, AND THE USE OF SUCH ELECTROCHEMICAL CELLS
PILE ELECTROCHIMIQUE ENROULEE, SON PROCEDE DE PRODUCTION ET UTILISATION DE CE TYPE DE PILES ELECTROCHIMIQUES

Patent Applicant/Assignee:

DANIONICS A S,
YDE-ANDERSEN Steen,
KATVA Ilmari,

Inventor(s):

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KATVA Ilmari,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9703475 A1 19970130
Application: WO 96DK309 19960708 (PCT/WO DK9600309)
Priority Application: DK 80095 19950707

Designated States: AL AM AT AU AZ BB BG BR BY CA CH CN CZ DE DK EE ES FI GB GE HU IL IS JP KE KG KP KR KZ LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK TJ TM TR TT UA UG US VN KE LS MW SD SZ UG

AM AZ BY KG KZ MD RU TJ TM AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL
PT SE BF BJ CF CG CI CM GA GN ML MR NE SN TD TG
Main International Patent Class: H01M-006/10
International Patent Class: H01M-02:26
Publication Language: English
Fulltext Availability:
Detailed Description
Claims
Fulltext Word Count: 8317

English Abstract

The present invention relates to an electrochemical cell composed of a laminate of two electrode structures in the form of current collectors coated with electrode material interposed electrolyte structures. The laminate is wound in a coil, and in at least the initial turn and the final turn, one of the current collectors has a protruding part extending beyond at least one of the edges of the other current collector in the same turn and in the following or previous turn, respectively, and the first current collector has a protruding part extending beyond one of the edge of the second collector foil, the protruding parts of the current collectors along the first and the second edge, respectively, of the laminate are sealed to each other optionally with interposed insulating polymer material.

French Abstract

Cette invention concerne une pile electrochimique constituee d'un stratifie forme de deux structures d'electrodes sous forme de collecteurs de courant revetus de structures electrolytes entre lesquelles est interpose le materiau d'electrode. Le stratifie est enroule de facon a former une bobine et, au niveau d'au moins sa spire initiale et sa spire finale, un des collecteurs possede une partie en saillie depassant au moins l'un des bords de l'autre collecteur au niveau de la meme spire et de la spire suivante ou precedente, et le premier collecteur possede une partie en saillie depassant l'un des bords de la seconde feuille du collecteur. Les parties en saillie des collecteurs le long du premier et du second bord, respectivement, du stratifie sont scellees l'une a l'autre, eventuellement avec interposition de materiau polymere isolant.

Fulltext Availability:
Claims

Claim

- ... first collector foil in its whole length, and
this protruding part 336 is free of **electrode** material.
The second **electrode** structure 330 is shorter than the
first **electrode** structure 300.
The **electrolyte** structures 320, 321, respectively, have a
length and a width, a first edge 322, 326...
...and a second end 325, 329 extending
along the width thereof. The length of the **electrolyte**
structures 320f 321, ...respectively, is slightly longer than
the length of the coated part 305 of the first **electrode**
structure 300, and the width of the **electrolyte** structures
320f 321, respectively, is slightly broader than the width
of the coated parts 305, 335 of the **electrode** structures
300, 330.
The **electrode** structures 300, 330, and the **electrolyte**
structures 320, 321 are placed on top of each other as
shown in fig. 7, so that the first ends 304, 334 of the
electrode structures are placed above each other,, and a
polymer cover film strip 350 is placed below the laminate
so that its covers the second end. The cover film is
broader than any of the **electrolyte** structures 320, 321
and sufficiently long to cover the outer surface of the A flat...
...in the winding procedure. The
first end of the laminate which consists of the first
electrode structure 300 and the **electrolyte** structures

320j, 321 is inserted between the plates 340, and the core element 340 is...

- ...in the first coil edge 310 provided by the protruding part 306 of the first **electrode** structure surface of the cell, and a positive terminal in the second coil edge 311 provided by the protruding part 336 of the second **electrode** structure, The following examples illustrate production of two different preferred embodiments of the electrochemical...
 - ...93 mm is coated on both sides with a 58 gm thick layer of an **anode** material consisting of a mixture of coke, LiPF6 and polyvinylidene fluoride as a binder, except...a thickness of 30 gm and a length of 450 mm, prepared with a thermosetting **electrolyte** composed of 110 parts by weight of LiPF6,, 710 parts by weight of a 1...
 - ...which strip is coated on both sides with a 108 gm thick layer of a **cathode** material consisting of a mixture of carbon black and LiMn2O4,, except for a 3 mm...
 - ...second plastic film similar to the above-referred plastic film and prepared with a similar **electrolyte** is placed on top of said aluminium strip, two protruding parts of said plastic...said first 100 mm on both sides with a 58 gm thick layer of an **anode** material consisting of a mixture of coke, LiPF6 and polyvinylidene fluoride as a binder...
 - ...the coated part of the copper strip. The plastic film is prepared with a thermosetting **electrolyte** composed of 110 parts by weight of LiPF6, 710 parts by weight of a 1...
 - ...said last 100 mm on both sides with a 108 gm thick layer of a **cathode** material consisting of a mixture of carbon black and LiMn2O4. The remaining 45 mm piece...
 - ...the aluminium strip. This piece of plastic film is also prepared with the above-mentioned **electrolyte** . The resulting battery laminate is wound on a cylindrical mandrel (diameter = 3,6 mm) starting from the end from which the 62 mm piece of **anode** current collector protrudes. Thus, the initial turns are provided by the protruding copper foil...more particularly, the current collector metal foils provide a water-impermeable seal. The glue present **between** the **two current collectors** provides an electrical insulation sufficient for avoiding short-circuiting of the cell.
- SUBSTITUTE SHEET (RULE...

```
=> d query
L2      1351768 SEA FILE=HCA POLYMER# OR HOMOPOLYMER# OR COPOLYMER# OR
        TERPOLYMER#
L3      94865 SEA FILE=HCA L2(6A)(HEAT? OR HOT# OR MELT# OR WARM## OR
        WARMING OR CALEFACT? OR TORREFACT? OR PYROL? OR PYROG? OR
        SINTER? OR THERMOL?)
L4      50441 SEA FILE=HCA L2(6A)(THERMAL? OR TEPEFACT? OR PREHEAT? OR FUSE#
        OR FUSING OR FUSION?)
L5      5891 SEA FILE=HCA L2(6A)(HIGHER OR HIGH OR RAIS? OR HEIGHTEN?) (2A) (T
        EMP# OR TEMPERATURE?)
L6      5736 SEA FILE=HCA CURRENT(2A)COLLECT?
L8      29 SEA FILE=HCA (PLURALITY OR MANY OR MULTI OR SEVERAL OR TWO OR
        NUMBER OR NUMEROUS OR MULTIPLE OR MULTITUD? OR PLURIF? OR
        SECOND OR MORE)(1W)L6
L9      2 SEA FILE=HCA MULTILAYER?(1W)L6
L13     0 SEA FILE=HCA (L3 OR L4 OR L5) AND (L8 OR L9)
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=> d query
L1      669328 SEA FILE=HCA ELECTRODE# OR MICROELECTRODE# OR ELECTOLYTE# OR
        ANOD## OR CATHOD## OR KATHOD## OR POSODE## OR KATOD## OR
        NEGOD##
L6      5736 SEA FILE=HCA CURRENT(2A)COLLECT?
L8      29 SEA FILE=HCA (PLURALITY OR MANY OR MULTI OR SEVERAL OR TWO OR
        NUMBER OR NUMEROUS OR MULTIPLE OR MULTITUD? OR PLURIF? OR
        SECOND OR MORE)(1W)L6
L9      2 SEA FILE=HCA MULTILAYER?(1W)L6
L10     182 SEA FILE=HCA L6(3A)(SPACE# OR SPACING OR INTERSPACE? OR
        INTERSTICE? OR SEPARAT? OR SEP# OR CLEARANCE? OR INTERVAL?)
L11     268 SEA FILE=HCA L6(3A)(LAYER? OR STRATA# OR STRATUM# OR INTERLAY?
        OR INTERLAID?)
L12     312 SEA FILE=HCA L6(3A)(INSERT? OR INTERPOS? OR INSINUAT? OR
        BETWEEN OR SANDWICH? OR EMBED? OR BETWIXT OR INTRODUC? OR
        INTERVEN? OR INTERLARD? OR INTERJECT?)
L14     8 SEA FILE=HCA L1 AND (L8 OR L9) AND (L10 OR L11 OR L12)
```

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=> d cbib abs 114 1-8
```

L14 ANSWER 1 OF 8 HCA COPYRIGHT 2002 ACS
 135:346862 Sandwich **cathode** design for alkali metal electrochemical cell with high discharge rate capability. Gan, Hong (Wilson Greatbatch Limited, USA). Eur. Pat. Appl. EP 1150366 A2 20011031, 19 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN: EPXXDW. APPLICATION: EP 2001-303866 20010427. PRIORITY: US 2000-560060 20000427.

AB A new sandwich **cathode** design having a first **cathode** active material of a relatively high energy d. but of a relatively low rate capability **sandwiched between two current collectors** and with a second **cathode** active material having a relatively low energy d. but of a relatively high rate capability in contact with the opposite sides of the **two current collectors**, is disclosed. The present **cathode** design is useful for powering an implantable medical device requiring a high rate discharge application.

L14 ANSWER 2 OF 8 HCA COPYRIGHT 2002 ACS
 135:21967 Battery cell having notched layers and a method for producing the same. Gross, Oliver J. (Valence Technology, Inc., USA). PCT Int. Appl. WO 2001041245 A1 20010607, 33 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,

NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2000-US30270 20001102. PRIORITY: US 1999-451901 19991201.

- AB The invention provides a battery cell including an **electrode** having an area defined by a perimeter including an edge, a counter **electrode** having an area defined by a perimeter including an edge, and a separator having an area defined by a perimeter including an edge. The separator is sandwiched between the **electrode** and the counter **electrode** in a layered relationship with at least portions of the edges being contiguous. The separator and one of the **electrode** and the counter **electrode** each include a first notch in the edge exposing a portion of the other of the **electrode** and counter **electrode**. The separator and the other of the **electrode** and the counter **electrode** each include a second notch in the edge exposing a portion of the one of the **electrode** and the counter **electrode**. A method of producing a battery cell having a plurality of film layers, a plurality of current collector layers, and at least one separator layer, with each current collector layer including a predetd. lead portion, is also provided. The method includes the steps of: providing at least one notch in each layer, and stacking the layers with the notches arranged with one another to expose the predetd. lead portion of each current collector layer.

L14 ANSWER 3 OF 8 HCA COPYRIGHT 2002 ACS

- 132:310866 Planar fuel cell. Pratt, Steven D.; Kelley, Ronald J.; Muthuswamy, Sivakumar; Landreth, Bobby Dean; Pennisi, Robert W. (Motorola Inc., USA). PCT Int. Appl. WO 2000026980 A1 20000511, 24 pp. DESIGNATED STATES: W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 1999-US23893 19991014. PRIORITY: US 1998-183459 19981030.

- AB A planar fuel cell includes a membrane **electrode** assembly sandwiched between two current collector assemblies. The membrane **electrode** assembly is a single sheet of a polymer electrolyte membrane with an array of **anodes** on one side and an array of corresponding **cathodes** on the other side. The current collectors can be supported by a plastic frame, and they have an interconnect tab that provides an elec. pathway to the exterior of the membrane **electrode** assembly. The interconnect tab is situated to provide electron transfer between the **anodes** and the **cathodes** such that the interconnect tab does not traverse the thickness of the polymer electrolyte membrane. When the planar fuel cell is assembled, the interconnect tab is sealed to prevent leaking of fuel or oxidant gases. Fuel is distributed to only one side of the membrane **electrode** assembly and oxidant is distributed only to the other side.

L14 ANSWER 4 OF 8 HCA COPYRIGHT 2002 ACS

- 132:259851 Easy-to-manipulate strip-shaped electrochemical sensor for measuring device. Frenkel, Erik Jan; Jaeger, Gerard (Asulab S.A., Switz.). Eur. Pat. Appl. EP 992790 A1 20000412, 7 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (French). CODEN: EPXXDW. APPLICATION: EP 1998-119146 19981009.

AB An electrochem. sensor, in the form of a small strip, consists of a thin plastic substrate that supports at least **two collectors** of elec. **current smpd.** by an elec. insulating space, all of which are covered by a plastic covering. Two windows are cut through the plastic covering, one of which exposes at least a portion of the two collectors, and the other, at the opposite end, to expose working and ref. **electrodes**. A knob is located on the flat sensor at a location between the end of the sensor and the exposed **electrodes**. This knob, which is fabricated by cold or hot deformation of the external face of the substrate, permits easy phys. manipulation of the sensor by provided a source of seizure or obstruction of movement of the sensor (e.g., within a device). The sensor can also be used for biol. sensing (e.g., with glucose oxidase enzyme **electrodes**).

L14 ANSWER 5 OF 8 HCA COPYRIGHT 2002 ACS

131:104427 Electroactive polymer materials for solid-polymer fuel cells. Kim, Kwang J.; Shahinpoor, Mohsen; Razani, Arsalan (Artificial Muscles Res. Inst. (AMRI), School of Eng. and Sch. Med., The Univ. of New Mexico, Albuquerque, NM, USA). Proceedings of SPIE-The International Society for Optical Engineering, 3669(Electroactive Polymer Actuators and Devices), 385-393 (English) 1999. CODEN: PSISDG. ISSN: 0277-786X. Publisher: SPIE-The International Society for Optical Engineering.

AB A review with 67 refs. on the potential use of electroactive polymer materials for solid-polymer fuel cells. In order to realize the fast intrinsic kinetics of the **cathode** reaction an efficient utilization of the Pt catalyst is necessary. In this sense, a novel concept of a fabrication technique of the membrane-**electrode** assembly (MEA) that consists of a Pt-deposited ion exchange membrane and **two current collectors is introduced**.

It appears that the manufg. process of such MEAs is simple, efficient, and economical, relative to the current state-of-art MEA technol. that employs various particle distribution techniques. Also, it should be pointed out that the use of this new MEA fabrication technique could improve the rate d. of H⁺ transport significantly.

L14 ANSWER 6 OF 8 HCA COPYRIGHT 2002 ACS

130:258622 Transfer matrix method for the electrochemical impedance of inhomogeneous porous **electrodes** and membranes. Nguyen, P. H.; Paasch, G. (Institut für Festkörper- und Werkstofforschung Dresden, Dresden, D-01171, Germany). Journal of Electroanalytical Chemistry, 460(1,2), 63-79 (English) 1999. CODEN: JECHES. ISSN: 0368-1874. Publisher: Elsevier Science S.A..

AB The method presented here is based on the two-phase model of a porous system with two continuous subsystems, electrons in the porous material and ions in the pore electrolyte. Both are continuously interconnected via the pore surfaces e.g. by the double layer capacity and/or the charge transfer resistance. The equivalent circuit for this system is the transmission line model. The method applies to systems with parameters which are not const. across the layer. The layer is divided into a no. of slabs and in each slab all parameters are replaced by their mean values. The potentials and the currents of two adjacent slabs are connected by a matrix, in the general case a 4.times.4 matrix. The potential propagation in the whole layer is detd. by the product matrix. The impedance for both a **layer coating a metallic current collector** and a porous membrane embedded in the electrolyte (or the porous layer with electrolyte-filled pores in **between two metallic current collectors**) can be expressed by the elements of the product matrix. The matrix is reduced to a 2.times.2-form if one of the resistivities is negligible. In this case for a system of two homogeneous sublayers an anal. formulation is given. The method is applied to a system with an interconnection consisting of double layer capacity, charge transfer resistance and its hindrance by finite diffusion (applicable to polymers). Here the inhomogeneity gradients of the

resistivities are considered. It is demonstrated that they can result in significant qual. modifications of the impedance. This concerns esp. the low frequency pseudo-capacitive behavior which is transformed into a dependence resembling the well known empirical description by const. phase elements often used to interpolate exptl. data.

L14 ANSWER 7 OF 8 HCA COPYRIGHT 2002 ACS

119:230012 Factors affecting the internal resistance of silver/silver molybdate/iodine cells. Arof, A. K. (Cent. Found. Stud. Sci., Univ. Malaya, Kuala, 59100, Malay.). Journal of Power Sources, 45(2), 255-61 (English) 1993. CODEN: JPSODZ. ISSN: 0378-7753.

AB A Ag molybdate glass with the mol% stoichiometry of 60 AgI-20 Ag₂O-20 MoO₃ is prep'd. by liq. N temp. quenching of the melt. The glassy nature of the phase was confirmed by powder x-ray diffraction. The cond. of the glass from impedance spectroscopy is of the order of 10⁻³ S/cm at 300 K. The glass is an electrolyte and was used to manuf. several Ag/I batteries in which Ag is mixed in different proportions with the solid electrolyte to obtain battery **anode**. The **cathode** consists of a fixed ratio of iodine, electrolyte, and carbon. If the **cathode** disk is placed over the electrolyte surface of the **anode**/electrolyte disk and clamped between two Cu current collectors, the battery with a 1:1 wt. ratio of Ag powder and the electrolyte shows the lowest internal resistance. A second battery was manuf. with this **anode** compn., but the **anode**, electrolyte, and **cathode** are pressed together to form a single solid disk so as to eliminate **cathode**/electrolyte interfacial resistance that also contributes to the total internal resistance of the battery. For batteries with a compn. of 1:1 Ag powder and electrolyte wt. ratio, the internal resistance of the battery decreases from 2.3 k.OMEGA. when the **cathode** and **anode**/electrolyte layers of the battery are pressed sep. to 0.15 k.OMEGA. for a battery with the **anode**, electrolyte, and **cathode** pressed together. The value of 0.15 k.OMEGA. is in reasonable agreement with the bulk resistance of the electrolyte as obtained from the impedance plot.

L14 ANSWER 8 OF 8 HCA COPYRIGHT 2002 ACS

116:44112 Multilayer metal sheets for laminar batteries and manufacture of the batteries. Hasuda, Yoshiaki; Horie, Toshio; Ishizawa, Maki (Nippon Telegraph and Telephone Corp., Japan). Jpn. Kokai Tokkyo Koho JP 03163756 A2 19910715 Heisei, 5 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1989-299865 19891120.

AB The sheets, for use as collectors for sealed laminar batteries having **cathodes** and **anodes** on the same side of substrate films and sep'd. from each other by an electrolyte, are coated with an epoxy resin layer and .gtoreq.1 layers of maleic anhydride-contg. chlorinated polyethylene, optionally mixed with other chlorinated polymers. The batteries are prep'd. by coating the metal sheets with an epoxy resin, applying .gtoreq.1 layers of the chlorinated polyethylene on the coated sheets, and hot pressing the sheets to the substrate films. The sheets have strong bonding with the substrate films.

File 2:INSPEC 1969-2002/Oct W4
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 File 6:NTIS 1964-2002/Oct W4
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 File 8:Bi Compendex(R) 1970-2002/Oct W3
 (c) 2002 Engineering Info. Inc.
 File 34:SciSearch(R) Cited Ref Sci 1990-2002/Oct W4
 (c) 2002 Inst for Sci Info
 File 35:Dissertation Abs Online 1861-2002/Oct
 (c) 2002 ProQuest InfoLearning
 File 65:Inside Conferences 1993-2002/Oct W4
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 File 94:JICST-EPlus 1985-2002/Aug W4
 (c)2002 Japan Science and Tech Corp(JST)
 File 99:Wilson Appl. Sci & Tech Abs 1983-2002/Sep
 (c) 2002 The HW Wilson Co.
 File 144:Pascal 1973-2002/Oct W4
 (c) 2002 INIST/CNRS
 File 305:Analytical Abstracts 1980-2002/Oct W2
 (c) 2002 Royal Soc Chemistry
 File 315:ChemEng & Biotech Abs 1970-2002/Sep
 (c) 2002 DECHEMA
 File 323:RAPRA Rubber & Plastics 1972-2002/Dec
 (c) 2002 RAPRA Technology Ltd
 File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec
 (c) 1998 Inst for Sci Info

Set	Items	Description
S1	305841	ELECTRODE# OR MICROELECTRODE# OR ELECTROLYTE# OR ANOD?? ? - OR CATHOD?? ? OR KATHOD?? ? OR POSODE?? ? OR KATOD?? ? OR NEG- OD?? ?
S2	12405	CURRENT(2N)COLLECT???? ?
S3	63	PLURALITY OR MANY OR MULTI OR SEVERAL OR TWO OR NUMBER OR NUMEROUS OR MULTIPLE OR MULTITUD? OR PLURIF? OR SECOND OR MOR- E)(1W)S2
S4	0	MULTILAYER?(1W)S2
S5	150	S2(3N)(SPACE? ? OR SPACING? OR INTERSPAC???? ? OR INTERSTI- C? OR SEPARAT???? ? OR SEP? ? OR CLEARANCE? OR INTERVAL? ?)
S6	129	S2(3N)(LAYER? ? OR STRATA? ? OR STRATUM? ? OR INTERLAY? OR INTERLAIID?)
S7	255	S2(3N)(INSERT? OR INTERPOS? OR INSINUAT? OR BETWEEN OR SAN- DNICH? OR EMBED? OR BETWIXT OR INTRODUC? OR INTERVEN? OR INTE- RLARD? OR INTERJECT?)
S8	814181	ELECTRODE? ? OR MICROELECTRODE? ? OR ELECTROLYTE? ?
S9	21	S3:S4(S)S5:S8
S10	21	S9(S) (S1 OR S8)
S11	1895283	POLYMER? ? OR HOMOPOLYMER? ? OR COPOLYMER? ? OR TERPOLYMER? ?
S12	161874	S11(6N)(HEAT? OR HOT? ? OR MELT??? ? OR WARM?? ? OR WARMING OR CALEFACT? OR TORREFACT? OR PYROL? OR PYROG? OR SINTER? OR THERMOL? OR THERMAL?)
S13	5279	S11(6N)(TEPEFACT? OR PREHEAT? OR FUSE? ? OR FUSING OR FUSI- ON)
S14	17352	S11(6N)(HIGH OR HIGHER OR RAIS? OR HEIGHTEN)(2N)(TEMP? ? OR TEMPERATURE? OR THERMAL?)
S15	6	S3:S4 AND S5:S7
S16	3	RD (unique items)

?t16/7/all

16/7/1 (Item 1 from file: 2)
 DIALOG(R)File 2:INSPEC
 (c) 2002 Institution of Electrical Engineers. All rts. reserv.

4476163 INSPEC Abstract Number: A9320-8630D-003, B9310-8410-008
**Title: Factors affecting the internal resistance of silver/silver
 molybdate/iodine cells**
 Author(s): Arof, A.K.
 Author Affiliation: Centre for Found. Studies in Sci., Malaya Univ.,

Journal: Journal of Power Sources vol.45, no.2 p.255-61
 Publication Date: June 1993 Country of Publication: Switzerland
 CODEN: JPSODZ ISSN: 0378-7753
 U.S. Copyright Clearance Center Code: 0378-7753/93/\$6.00
 Language: English Document Type: Journal Paper (JP)
 Treatment: Experimental (X)

Abstract: A silver molybdate glass with the mol.% stoichiometry of $60\text{AgI}-20\text{Ag}/\text{sub } 2/0-20\text{MoO}/\text{sub } 3/$ is prepared by liquid nitrogen temperature quenching of the melt. The phase is an electrolyte and has been used to fabricate several iodine/silver electrochemical cells in which silver is mixed in different proportions with the solid electrolyte for the anode of the cells. If the cathode disc is placed over the electrolyte surface of the anode/electrolyte disc and clamped between two copper current collectors, the cell with a 1:1 weight ratio of silver powder and the electrolyte shows the lowest internal resistance. For the cells with a composition of 1:1 silver powder and electrolyte weight ratio, the internal resistance of the cell decreases from 2.3 k Ω when the cathode and anode/electrolyte layers of the cell are pressed separately to 0.15 k Ω for a cell with a anode, electrolyte and cathode pressed together. The value of 0.15 k Ω is in reasonable agreement with the bulk resistance of the electrolyte as obtained from the impedance plot. (11 Refs)

Subfile: A B

16/7/2 (Item 1 from file: 8)

DIALOG(R)File 8: Ei Compendex(R)
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02182399 E.I. Monthly No: EI8703029819

Title: ANTIREFLECTION COATINGS FOR PLANAR SILICON SOLAR CELLS.

Author: Jellison, G. E. Jr.; Wood, R. F.

Corporate Source: Oak Ridge Natl Lab, Oak Ridge, TN, USA

Source: Solar Cells: Their Science, Technology, Applications and Economics v 18 n 2 Aug 1986 p 93-114

Publication Year: 1986

CODEN: SOCLD4 **ISSN:** 0379-6787

Language: ENGLISH

Document Type: JA; (Journal Article) **Treatment:** T; (Theoretical)

Journal Announcement: 8703

Abstract: Calculations are presented for the effect of various antireflection coatings on silicon solar cells. The relationship of different quantum efficiencies and illumination spectra to the optimum film thickness(es) and to the maximum collectible current is examined. It is found that the ratio of the collectible current to the maximum possible current (with the reflectivity = 0 over the entire solar spectrum) is larger if the solar cell has a poor spectral quantum efficiency and/or the illumination spectrum is peaked (such as from an ELH lamp). Single- and double-layer coatings are examined, and it is found that the double-layer coatings are less sensitive to errors in the coating thicknesses, as well as yielding more collectible current. (Author abstract) 26 refs.

16/7/3 (Item 1 from file: 34)

DIALOG(R)File 34: SciSearch(R) Cited Ref Sci
 (c) 2002 Inst for Sci Info. All rts. reserv.

07501779 Genuine Article#: 174DM Number of References: 27

Title: Transfer matrix method for the electrochemical impedance of inhomogeneous porous electrodes and membranes

Author(s): Nguyen PH; Paasch G (REPRINT)

Corporate Source: INST FESTKORPER & WERKSTOFFFORSCH, /D-01171

DRESDEN//GERMANY/ (REPRINT); INST FESTKORPER & WERKSTOFFFORSCH, /D-01171

DRESDEN//GERMANY/; UNIV BAYREUTH, LEHRSTUHL EXPT PHYS 2/D-95440

BAYREUTH//GERMANY/

Journal: JOURNAL OF ELECTROANALYTICAL CHEMISTRY, 1999, V460, N1-2 (JAN 18), P63-79

ISSN: 0022-0728 **Publication date:** 19990118

Abstract: The method presented here is based on the two-phase model of a porous system with two continuous subsystems, electrons in the porous material and ions in the pore electrolyte. Both are continuously interconnected via the pore surfaces e.g. by the double layer capacity and/or the charge transfer resistance. The equivalent circuit for this system is the transmission line model. The method applies to systems with parameters which are not constant across the layer. The layer is divided into a number of slabs and in each slab all parameters are replaced by their mean values. The potentials and the currents of two adjacent slabs are connected by a matrix, in the general case a 4×4 matrix. The potential propagation in the whole layer is determined by the product matrix. The impedance for both a **layer** coating a metallic **current collector** and a porous membrane embedded in the electrolyte (or the porous layer with electrolyte-filled pores in **between two metallic current collectors**) can be expressed by the elements of the product matrix. The matrix is reduced to a 2×2 -form if one of the resistivities is negligible. In this case for a system of two homogeneous sublayers an analytical formulation is given. The method is applied to a system with an interconnection consisting of double layer capacity, charge transfer resistance and its hindrance by finite diffusion (applicable to polymers). Here the inhomogeneity gradients of the resistivities are considered. It is demonstrated that they can result in significant qualitative modifications of the impedance. This concerns especially the low frequency pseudo-capacitive behaviour which is transformed into a dependence resembling the well known empirical description by constant phase elements often used to interpolate experimental data. (C) 1999 Elsevier Science S.A. All rights reserved.

File 98:General Sci Abs/Full-Text 1984-2002/Sep
 (c) 2002 The HW Wilson Co.
 File 369:New Scientist 1994-2002/Sep W5
 (c) 2002 Reed Business Information Ltd.
 File 370:Science 1996-1999/Jul W3
 (c) 1999 AAAS

Set	Items	Description
S1	1184	ELECTRODE# OR MICROELECTRODE# OR ELECTROLYTE# OR ANOD?? ? - OR CATHOD?? ? OR KATHOD?? ? OR POSODE?? ? OR KATOD?? ? OR NEG- OD?? ?
S2	64	CURRENT(2N)COLLECT???? ?
S3	0	{PLURALITY OR MANY OR MULTI OR SEVERAL OR TWO OR NUMBER OR NUMEROUS OR MULTIPLE OR MULTITUD? OR PLURIF? OR SECOND OR MOR- E}(1W)S2
S4	0	MULTILAYER?(1W)S2
S5	1	S2(3N){SPACE? ? OR SPACING? OR INTERSPAC???? ? OR INTERSTI- C? OR SEPARAT???? ? OR SEP? ? OR CLEARANCE? OR INTERVAL? }
S6	1	S2(3N){LAYER? ? OR STRATA? ? OR STRATUM? ? OR INTERLAY? OR INTERLAD?}
S7	4	S2(3N){INSERT? OR INTERPOS? OR INSINUAT? OR BETWEEN OR SAN- DWICH? OR EMBED? OR BETWIXT OR INTRODUC? OR INTERVEN? OR INTE- RLARD? OR INTERJECT?}
S8	7340	ELECTRODE? ? OR MICROELECTRODE? ? OR ELECTROLYTE? ?
S9	1	(S1 OR S8)(S)S5:S7

?t9/3,k

9/3,K/1 (Item 1 from file: 98)
 DIALOG(R)File 98:General Sci Abs/Full-Text
 (c) 2002 The HW Wilson Co. All rts. reserv.

04663297 H.W. WILSON RECORD NUMBER: BGSA01163297
Solid acids show potential for fuel cell electrolytes.
 Fitzgerald, Richard
 Physics Today (Phys Today) v. 54 no7 (July 2001) p. 22-4
 SPECIAL FEATURES: il ISSN: 0031-9228
 LANGUAGE: English
 COUNTRY OF PUBLICATION: United States

...ABSTRACT: 910) have shown that solid acids have the potential to be used for fuel cell **electrolytes** . Fuel cells are being investigated as a clean and efficient way of producing electrical energy...

...was later evaporated to create a new porous catalyst layer with high surface area. Graphite **current - collecting electrodes** surrounded these **layers** . When heated to 160(degree)C and with hydrogen supplied to the **anode** and oxygen to the **cathode** , the assembly developed an open-circuit voltage of 1.11 V. Such cells might prove...
 ?

File 344:Chinese Patents Abs Aug 1985-2002/Oct
 (c) 2002 European Patent Office
 File 347:JAPIO Oct 1976-2002/Jun(Updated 021004)
 (c) 2002 JPO & JAPIO
 File 350:Derwent WPIX 1963-2002/UD,UM &UP=200268
 (c) 2002 Thomson Derwent
 File 371:French Patents 1961-2002/BOPI 200209
 (c) 2002 INPI. All rts. reserv.
 File 348:EUROPEAN PATENTS 1978-2002/Oct W03
 (c) 2002 European Patent Office
 File 349:PCT FULLTEXT 1979-2002/UB=20021024,UT=20021017
 (c) 2002 WIPO/Univentio

Set	Items	Description
S1	353	AU='FUJIWARA M'
S2	213	AU='FUJIWARA MASAKI':AU='FUJIWARA MASAKI SUMIKA FINE CHEMI- CAL CO LTD'
S3	545	AU='NAKAGAWA Y':AU='NAKAGAWA Y Y'
S4	356	AU='NAKAGAWA YUJI':AU='NAKAGAWA YUJI MITSUBISHI HEAVY INDU- STRIES LTD'
S5	61	AU='KUROSAKI M'
S6	14	AU='KUROSAKI MASATO'
S7	444	AU='KANEKO S'
S8	11	AU='KANEKO SHINAKO'
S9	23	AU='HARADA G'
S10	17	AU='HARADA GAKU':AU='HARADA GAKU C O NEC CORPORATION'
S11	289	AU='NISHIYAMA T'
S12	178	AU='NISHIYAMA TOSHIHIKO':AU='NISHIYAMA TOSHIHIKO NEC CORPO- RATION'
S13	37	S1:S2 AND S3:S12
S14	4	S1:S2 AND S3:S4 AND S5:S6 AND S7:S8 AND S9:S10 AND S11:S12
S15	28201	(ELECTRODE? ? OR MICROELECTRODE? ? OR ELECTROLYTE? ? OR BA- TTERY? OR BATTERIES)(10N)(POLYMER? ? OR HOMOPOLYMER? ? OR COP- OLYMER? OR TERPOLYMER?)
S16	604	S15(10N)(PLASTICIZER? OR PLASTICISER? OR PLASTOMER? OR ELA- STOMER?)
S17	1	S13 AND S16
S18	4	S14 OR S17

?t18/9/1-3

18/9/1 (Item 1 from file: 350)
 DIALOG(R)File 350:Derwent WPIX
 (c) 2002 Thomson Derwent. All rts. reserv.

014019843 **Image available**
 WPI Acc No: 2001-504057/200156
 XRAM Acc No: C01-151575
 XRPX Acc No: N01-373905

Secondary battery useful as battery or electrochemical capacitor,
 includes two collectors made of valve action metal, and two electrodes
 Patent Assignee: NEC CORP (NIDE); FUJIWARA M (FUJI-I); HARADA G (HARA-I);
 KANEKO S (KANE-I); KUROSAKI M (KURO-I); NAKAGAWA Y (NAKA-I); NISHIYAMA T
 (NISH-I)

Inventor: FUJIWARA M ; HARADA G ; KANEKO S ; KUROSAKI M ; NAKAGAWA Y ;
 NISHIYAMA T

Number of Countries: 029 Number of Patents: 004
 Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 1107343	A2	20010613	EP 2000126188	A	20001130	200156 B
JP 2001160396	A	20010612	JP 99342075	A	19991201	200156
KR 2001062017	A	20010707	KR 200071932	A	20001130	200175
US 20020132168	A1	20020919	US 2000725872	A	20001130	200264

Priority Applications (No Type Date): JP 99342075 A 19991201

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

EP 1107343 A2 E 12 H01M-010/36

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT

LI LT LU LV MK NL PT RO SE SI TR
JP 2001160396 A 6 H01M-004/64
KR 2001062017 A H01M-004/64
US 20020132168 A1 H01M-004/04

Abstract (Basic): EP 1107343 A2

NOVELTY - Secondary battery comprises two collectors made of valve action metal (6), two electrodes (3, 4), separator (5), and outer can (1). A at least 30 to less than 100 % of surface area of each collector is respectively covered with oxide film (2), which is 1.7-10 nm thick.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a method of producing a secondary battery comprising subsequently forming first and second oxide films to at least 30 to less than 100% of surface area of respective collector, and subsequently forming first and second electrodes on respective collector. Each oxide film is 1.7-10 nm thick.

USE - Useful as secondary battery, e.g. battery, electrochemical capacitor or electric double-layered capacitor.

ADVANTAGE - The secondary battery exhibits an excellent cyclic property and film forming property.

DESCRIPTION OF DRAWING(S) - The drawing is schematically illustrating the inner structure of the inventive battery.

outer can (1)
oxide film (2)
two electrodes (3, 4)
separator (5)
valve action metal (6)
pp: 12 DWG No 1/2

Technology Focus:

TECHNOLOGY FOCUS - ELECTRICAL POWER AND ENERGY - Preferred Components: The first electrode is a mixture comprising polyphenyl quinoxaline, carbon powder and sulfuric acid aqueous solution. The second electrode is a mixture comprising polycyanindole, carbon powder and sulfuric acid aqueous solution. The separator is a micro-porous separator. Preferred Condition: A formation voltage is higher than the working voltage of the secondary battery applied to the collectors to form the respective oxide film. The formation voltage is 3 V.

INORGANIC CHEMISTRY - Preferred Materials: The valve action metal is tantalum or niobium. The oxide film is made of tantalum pent oxide or niobium pent oxide.

Title Terms: SECONDARY; BATTERY; USEFUL; BATTERY; ELECTROCHEMICAL; CAPACITOR; TWO; COLLECT; MADE; VALVE; ACTION; METAL; TWO; ELECTRODE
Derwent Class: A26; A85; L03; X16

International Patent Class (Main): H01M-004/04; H01M-004/64; H01M-010/36

International Patent Class (Additional): H01M-004/60; H01M-004/66

File Segment: CP1; EPI

Manual Codes (CPI/A-N): A05-J02; A12-E06; L03-E01D

Manual Codes (EPI/S-X): X16-B01X; X16-E01A; X16-E02

Polymer Indexing (PS):

<01>

001 Q18; D01 D11 D10 D19 D18 D32 D76 D50 D92 F32 F30 F94 F70; P1854; P0077

002 Q18; ND01; ND07; Q9999 Q7341 Q7330; Q9999 Q7363 Q7330; Q9999 Q7409 Q7330; N9999 N7078 N7034 N7023; N9999 N7147 N7034 N7023; K9552 K9483; K9610 K9483; K9687 K9676; K9676-R; K9712 K9676; B9999 B5243-R B4740; K9416

18/9/2 (Item 2 from file: 350)

DIALOG[R]File 350:Derwent WPXI

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013982553 **Image available**

WPI Acc No: 2001-466767/200151

XRAM Acc No: C01-140911

XRF Acc No: N01-346289

Polymer secondary cell electrode production comprises mixing polymer active material powder and conductivity assisting agent powder and

Molding by pressing

Patent Assignee: NEC CORP (NIDE)

Inventor: FUJIWARA M ; HARADA G ; KANEKO S ; KUROSAKI M ; NAKAGAWA Y ; NISHIYAMA T

Number of Countries: 027 Number of Patents: 003

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 1094531	A2	20010425	EP 2000122609	A	20001017	200151 B
JP 2001118570	A	20010427	JP 99296903	A	19991019	200151
KR 2001040111	A	20010515	KR 200061159	A	20001018	200167

Priority Applications (No Type Date): JP 99296903 A 19991019

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

EP 1094531 A2 E 13 H01M-004/04

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT

LI LT LU LV MC MK NL PT RO SE SI

JP 2001118570 A 8 H01M-004/04

KR 2001040111 A H01M-004/04

Abstract (Basic): EP 1094531 A2

NOVELTY - Production of a polymer secondary cell electrode comprises mixing a polymer active material powder (1) exhibiting an electrochemical oxidation-reduction reaction and a conductivity assisting agent powder (2) and molding the mixture by thermal pressing to a predetermined thickness.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(i) the production of a polymer secondary cell electrode comprising coating a conductivity assisting agent with a polymer active material exhibiting an electrochemical oxidation-reduction reaction and molding the coated powder by thermal pressing; and

(ii) the production of a polymer secondary cell electrode comprising attaching by thermal pressing a polymer active material powder exhibiting an electrochemical oxidation-reduction reaction onto a metal foil, a metal mesh, or a metal fiber made of or coated with a conductivity assisting agent, so as to be molded into a predetermined thickness.

USE - Production of a polymer secondary cell electrode.

ADVANTAGE - A cell electrode with a large film thickness is produced without causing cracks or breakage. The large film thickness of the electrode improves the energy density of the polymer secondary cell.

DESCRIPTION OF DRAWING(S) - The figure shows a cross sectional view of a portion of an electrode.

Polymer active material (1)

Conductivity assisting agent (2)

pp: 13 DwgNo 1/6

Technology Focus:

TECHNOLOGY FOCUS - POLYMERS - Preferred Material: The polymer active material is selected from polyaniline, polypyrrol, polythiophen, polyacetylene, polyvinyl carbazole, polytriphenylamine, polypyridine, polypyrrolidine, polyquinoxaline, polyphenylquinoxaline, polyisothianaphthen, polypyridinezeal, polythienylene, polyparaffinylene, polyfluran, polyacen, polyfuran, polyazulene, polyindol and polydiaminoantraquinone.

INORGANIC CHEMISTRY - Preferred Material: The conductivity assisting agent powder is one or more than one in combination selected from acetylene black, Ketjen black, epitaxial carbon, graphite powder, aniline black, activated carbon powder and other conductive carbon powder, polyacrylonitrile, pitch, cellulose, phenol resin or sintered carbon powder formed from palm shells, oxide powder of titanium, tin or indium, metal powder such as stainless steel, nickel, gold, silver, tantalum, niobium, copper and aluminum.

Title Terms: POLYMER; SECONDARY; CELL; ELECTRODE; PRODUCE; COMPRISE; MIX; POLYMER; ACTIVE; MATERIAL; POWDER; CONDUCTING; ASSIST; AGENT; POWDER; THERMAL; PRESS

Derwent Class: A26; A85; L03; X16

International Patent Class (Main): H01M-004/04
International Patent Class (Additional): G02F-001/17; H01M-004/60;
H01M-004/62

File Segment: CPI; EPI

Manual Codes (CPI/A-N): A09-A03; A11-B11; A12-E06A; L03-E01B9

Manual Codes (EPI/S-X): X16-E03A; X16-E08

Polymer Indexing (PS):

<01>

001 018; R00232 G1650 G1649 D01 D19 D18 D31 D50 D76 D86 F08 F07; S9999
S1434; S9999 S1456-R; S9999 S1514 S1456; S9999 S1605-R; L9999 L2540
L2506; L9999 L2664 L2506; P1127 P1105 H0293 D01 D19 D18 F07; H0000;
L9999 L2573 L2506; L9999 L2039

002 018; R00894 G1650 G1649 D01 D23 D22 D31 D41 D51 D54 D56 D59 D75 D84
F08 F07; S9999 S1434; S9999 S1456-R; S9999 S1514 S1456; S9999
S1605-R; L9999 L2540 L2506; L9999 L2664 L2506; H0000; P1412 H0293
P0044 D23 D22 D41 D51 D56 D59 F07; L9999 L2573 L2506; L9999 L2299

003 018; R00898 G2006 D01 D23 D22 D31 D43 D51 D54 D56 D59 D75 D84 F00;
S9999 S1434; S9999 S1456-R; S9999 S1514 S1456; S9999 S1605-R; L9999
L2540 L2506; L9999 L2664 L2506; H0000; P1503 H0293 P0044 D01 D23
D22 D43 D51 D56 D59 F00; L9999 L2573 L2506; L9999 L2299

004 018; R00327 G0000 D01 D02 D12 D10 D51 D52 D82; S9999 S1434; S9999
S1456-R; S9999 S1514 S1456; S9999 S1605-R; L9999 L2540 L2506; L9999
L2664 L2506; H0000; L9999 L2573 L2506

005 018; G0624 G0022 D01 D07 D12 D10 D25 D22 D33 D41 D51 D53 D58 D79
F08 F07; S9999 S1434; S9999 S1456-R; S9999 S1514 S1456; S9999
S1605-R; L9999 L2540 L2506; L9999 L2664 L2506; H0000; L9999 L2573
L2506

006 018; D01 D19 D18 D33 D76 D50 D93 F08 F07; S9999 S1434; S9999
S1456-R; S9999 S1514 S1456; S9999 S1605-R; L9999 L2540 L2506; L9999
L2664 L2506; P0000; P0442-R P0044 D01 D18; L9999 L2506-R; L9999
L2299

007 018; D01 D23 D22 D31 D76 D41 D50 D85 N- 5A; S9999 S1434; S9999
S1456-R; S9999 S1514 S1456; S9999 S1605-R; L9999 L2540 L2506; L9999
L2664 L2506; P1854; H0293; L9999 L2506-R; L9999 L2299

008 018; D01 D23 D22 D31 D76 D45 D84 D50 N- 5A; S9999 S1434; S9999
S1456-R; S9999 S1514 S1456; S9999 S1605-R; L9999 L2540 L2506; L9999
L2664 L2506; P1854; H0293; L9999 L2506-R; L9999 L2299

009 018; D01 D19 D18 D32 D33 D76 D78 D45 D50 D88 D93 N- 5A D24 D22;
S9999 S1434; S9999 S1456-R; S9999 S1514 S1456; S9999 S1605-R; L9999
L2540 L2506; L9999 L2664 L2506; H0293; P1854; L9999 L2506-R; L9999
L2299

010 018; G2006-R D01 F00 D24 D22 D32 D77 D43 D54 D51 D56 D59 D88; S9999
S1434; S9999 S1456-R; S9999 S1514 S1456; S9999 S1605-R; L9999 L2540
L2506; L9999 L2664 L2506; H0293; P1503 H0293 P0044 D01 D23 D22 D43
D51 D56 D59 F00; H0000; L9999 L2573 L2506; L9999 L2299

011 018; D01 D06 D07 D35 D77 D79 D42 D50 D93 F34 F43 D63; S9999 S1434;
S9999 S1456-R; S9999 S1514 S1456; S9999 S1605-R; L9999 L2540 L2506;
L9999 L2664 L2506; P0000; P1854; L9999 L2506-R

012 018; R00896 G1592 D01 D23 D22 D31 D42 D51 D54 D56 D59 D75 D84 F34;
S9999 S1434; S9999 S1456-R; S9999 S1514 S1456; S9999 S1605-R; L9999
L2540 L2506; L9999 L2664 L2506; H0000; H0293; L9999 L2573 L2506;
L9999 L2299; P1854

013 018; D01 D21 D18 D32 D78 D50; S9999 S1434; S9999 S1456-R; S9999
S1514 S1456; S9999 S1605-R; L9999 L2540 L2506; L9999 L2664 L2506;
H0293; P0442-R P0044 D01 D18; L9999 L2506-R; L9999 L2299

014 018; G0259 G0248 G0022 D01 D51 D53 D24 D22 D32 D77 D59 D88 F08 F07;
S9999 S1434; S9999 S1456-R; S9999 S1514 S1456; S9999 S1605-R; L9999
L2540 L2506; L9999 L2664 L2506; H0000; P1854; L9999 L2573 L2506

015 018; D01 D07 D25 D22 D33 D79 D50 D93 F09 F07 F23; S9999 S1434;
S9999 S1456-R; S9999 S1514 S1456; S9999 S1605-R; L9999 L2540 L2506;
L9999 L2664 L2506; H0293; P1854; P0000; P0442-R P0044 D01 D18;
L9999 L2506-R; L9999 L2299

016 018; ND01; ND07; N9999 N7147 N7034 N7023; N9999 N7158 N7034 N7023;
N9999 N6439; N9999 N6780-R N6655; N9999 N6155; B9999 B5243-R B4740;
K9552 K9483; K9574 K9483; K9518 K9483; Q9999 Q7341 Q7330; Q9999
Q7409 Q7330; K9701 K9676; B9999 B3269 B3130; K9949; B9999 B3849-R
B3838 B3747; N9999 N6440-R; K9416; N9999 N6462 N6440; N9999 N6177-R

017 018; K9610 K9483; ND03

018 018; A999 A475
 <02>
 001 018; R00817 G0475 G0260 G0022 D01 D12 D10 D26 D51 D53 D58 D83 F12;
 S9999 S1434; S9999 S1514 S1456; M9999 M2108 M2095; H0000; P0088 ;
 P0102
 002 018; R24071 G3601 P0599 D01; S9999 S1434; S9999 S1514 S1456; M9999
 M2108 M2095
 003 018; R01852-R G3634 D01 D03 D11 D10 D23 D22 D31 D42 D50 D76 D86 F24
 F29 F26 F34 H0293 P0599 G3623; S9999 S1434; S9999 S1514 S1456;
 M9999 M2108 M2095
 004 018; P0226 P0282-R D01 D18 F30; S9999 S1434; S9999 S1514 S1456;
 M9999 M2108 M2095
 005 018; ND01; ND07; N9999 N7147 N7034 N7023; N9999 N7158 N7034 N7023;
 N9999 N6439; N9999 N6780-R N6655; N9999 N6155; B9999 B5243-R B4740;
 K9552 K9483; K9574 K9483; K9518 K9483; Q9999 Q7341 Q7330; Q9999
 Q7409 Q7330; K9701 K9676; B9999 B3269 B3190; K9949; B9999 B3849-R
 B3838 B3747; N9999 N6440-R; K9416; N9999 N6462 N6440; N9999 N6177-R
 006 018; N9999 N7090 N7034 N7023; B9999 B5447 B5414 B5403 B5276

18/9/3 (Item 3 from file: 350)
 DIALOG(R)File 350:Derwent WPIX
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013892847 **Image available**
 WPI Acc No: 2001-377060/200140
 XRAM Acc No: C01-115424
 XRPX Acc No: N01-276002

Molded electrode for use in secondary battery comprises electrode
 material with polymer active material, conductivity-enhancer and
 plasticizer, molded in one piece with current collector sheet
 Patent Assignee: NEC CORP (NIDE)
 Inventor: FUJIWARA M ; HARADA G ; KANEKO S ; KUROSAKI M ; NAKAGAWA Y ;
 NISHIYAMA T

Number of Countries: 002 Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
GB 2355579	A	20010425	GB 200025172	A	20001013	200140 B
JP 2001118565	A	20010427	JP 99292537	A	19991014	200141

Priority Applications (No Type Date): JP 99292537 A 19991014

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
GB 2355579	A		64	H01M-010/40	
JP 2001118565	A		15	H01M-004/02	

Abstract (Basic): GB 2355579 A

NOVELTY - Molded electrode comprises an electrode material (2) and at least one current collector sheet (3). The electrode material includes a polymer active material, a conductivity-enhancing agent and a plasticizer, and is molded or formed into one piece with the collector sheet.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for:

(1) A process of forming a molded electrode by hot-pressing; and
 (2) A secondary battery which uses the molded electrode as the positive and/or negative electrode.

USE - As an electrode using a polymer active material in a secondary battery.

ADVANTAGE - The use of hot-pressing avoids solvent application, during which the solvent evaporates and often generates cracks in the film. The method also enables a thick film to be formed. The energy density of the battery is enhanced relative to previous devices, since the ratio of active material to current collector volume is increased. The plasticizer is chosen to minimize electrical resistance and so maximize power density. Since the electrode is not limited to a sheet-type, there is greater scope in battery design.

DESCRIPTION OF DRAWING(S) - The drawing shows a sectional view of a molded electrode.

Electrode material (2)
Current collector sheet (3)
Terminal (4)
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Technology Focus:

TECHNOLOGY FOCUS - ELECTRICAL POWER AND ENERGY - Preferred

Electrode: The electrode material is formed on at least one side of the current collector sheet(s) to a thickness of between 300 microns and 9 mm. A number of (at least two) current collector sheets are spaced from each other in the direction of the electrode thickness. The ratio of the volume of the electrode material and the volume of the current collector sheet (excluding the volume of the terminal portion (4) of the current collector sheet) is between 30:1 and 100:1. The amount of plasticizer is 2-15% by weight of the total of the electrode material.

Preferred Process: The hot-pressing step forms a molded material.

Electrode manufacture involves hot-pressing the molded material, the same electrode material and a different current collector sheet and/or laminating and hot-pressing a number of molded materials together, to form a one-piece molded electrode. An uneven die is used in the hot-pressing to form an uneven surface on the electrode material.

Title Terms: ELECTRODE; SECONDARY; BATTERY; COMPRISE; ELECTRODE; MATERIAL; POLYMER; ACTIVE; MATERIAL; CONDUCTING; ENHANCE; ONE; PIECE; CURRENT; COLLECT; SHEET

Derwent Class: A32; A85; L03; X16

International Patent Class (Main): H01M-004/02; H01M-010/40

International Patent Class (Additional): H01M-004/04

File Segment: CPI; EPI

Manual Codes (CPI/A-N): A08-M09A; A08-P01; A09-A03; A11-B01; A12-E06A; L03-E01B

Manual Codes (EPI/S-X): X16-E08A

Polymer Indexing (PS):

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001 018; P0000; S9999 S1434

002 018; ND01; ND07; N9999 N6440-R; Q9999 Q7341 Q7330; Q9999 Q7409

Q7330; B9999 B5243-R B4740; B9999 B5378 B5276; N9999 N6462 N6440

003 018; A999 A135; B9999 B3269 B3190

004 018; A999 A384

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18/5/4 (Item 1 from file: 348)

DIALOG(R)File 348:EUROPEAN PATENTS

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Electrode, secondary battery and method of producing the same
Elektrode, Sekundaratterie und Verfahren zur Herstellung
Electrode, batterie secondaire et leurs procedes de fabrication
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PATENT (CC, No, Kind, Date): EP 1107343 A2 010613 (Basic)

APPLICATION (CC, No, Date): EP 2000126188 001130;

PRIORITY (CC, No, Date): JP 99342075 991201
DESIGNATED STATES: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI;
LU; MC; NL; PT; SE; TR
EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI
INTERNATIONAL PATENT CLASS: H01M-010/36; H01M-004/66; H01M-004/60

ABSTRACT EP 1107343 A2

A secondary battery comprises a pair of collectors made of a valve action metal, a pair of electrodes comprising a sulfuric acid aqueous solution, a separator and an outer can. Each collector is covered with an oxide film of a thickness of 1.7-10 nm. The oxide film is formed in a range of from 30% by area or more to less than 100% by area relative to the surface area of the collector. Each collector has one electrode disposed thereon.

ABSTRACT WORD COUNT: 81

NOTE:

Figure number on first page: 1

LEGAL STATUS (Type, Pub Date, Kind, Text):

Application: 010613 A2 Published application without search report

Assignee: 020911 A2 Transfer of rights to new applicant: Nec Tokin Corporation (4092260) 7-1, Koriyama 6-chome, Taihaku-ku Sendai-shi, Miyagi JP

LANGUAGE (Publication, Procedural, Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200124	926
SPEC A	(English)	200124	4535
Total word count - document A			5461
Total word count - document B			0
Total word count - documents A + B			5461

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